

Duke

Submitter's Name/Affiliation: Duke Energy Corporation
Contact: Beverly Marshall, VP, Federal Governmental Affairs
Email: bkmarshall@duke-energy.com
Phone: (202) 331-8090

**Executive Summary of Responses by Duke Energy Corp.
to Questions Posed in the February 2006 White Paper Entitled
“Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System”**

The key points in Duke Energy's responses to the White Paper are summarized below :

Question 1 – Who is Regulated and Where?

- A GHG regulatory program should be *economy-wide*. A “comprehensive and effective national program” on climate change, as endorsed by the Sense of the Senate resolution, must have economy-wide coverage. Exclusion of sectors or GHGs from a program would be unfair and economically inefficient, and would reduce program effectiveness.
- For CO₂ emissions, the point of regulation should be *upstream*. An upstream approach allows maximum coverage of a GHG policy. Downstream and other approaches would likely result in more limited coverage, fragmented program approaches, economic inefficiency and greater administrative complexity and costs.

Question 2 – What Should Be Done with Allowances?

- Some allowances should be allocated as necessary to mitigate significant economic dislocations resulting from GHG policy. The critical inquiry is determining which entities incur significant costs as a result of the climate policy, not which ones are directly subject to the regulatory requirements.
- Point of regulation and receipt of allowances should be delinked. Decisions on who receives allocation of allowances can and should be independent of decisions on the point of regulation. For instance, with an upstream system, certain downstream fuel consumers, although not directly regulated, may bear significant burdens without judicious allocation of allowances.
- Some allowances should be auctioned, with revenues used, for instance, to support research, development and demonstration of new, innovative technologies.
- Offset projects should earn credits from outside the allowance pool.

Additional Topics – Safety Valve and Sustained Gradual Emission Limits are Essential; Carbon Tax Should Also be Considered as a “Mandatory Market-Based System.”.

- A U.S. policy should reduce emissions *gradually* over a long time horizon, beginning the effort in the *near term*.
- A GHG program should provide price certainty, *e.g.*, through a *safety valve* mechanism.
- The Committee also should consider a *carbon tax* approach. A well-designed carbon tax policy is a sound market-based climate change policy, providing economy-wide coverage, price certainty, gradual timing and administrative simplicity. Most economists believe a carbon tax approach is more economically efficient and less administratively complex than a cap-and-trade program.

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Question 1. Point of Regulation
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Who is regulated and where?

Duke Energy Corporation¹ (Duke Energy) appreciates the initiative taken by the Senate Energy and Natural Resources Committee to solicit public comment and initiate a policy dialog on design elements of a mandatory, market-based greenhouse gas (GHG) regulatory policy. In early 2005, Duke Energy adopted a corporate policy position supporting the establishment of a federal economy-wide, market-based climate change policy.²

As explained below, Duke Energy believes that an *economy-wide* program is needed to meet the standards set by the Sense of the Senate Resolution. Partial regulation would be unfair and inefficient. Furthermore, it is critically important to regulate on an *upstream* basis. Alternatives to the upstream approach risk limited coverage, fragmentation, inefficiency and administrative complexity.

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

In Duke Energy's view, a program with an *economy-wide* approach is needed to meet the standards set by the Sense of the Senate Resolution for a "comprehensive and effective" national program that "will not significantly harm the United States economy." As the White Paper's graphic "Greenhouse Gas Emissions Flow, 2004" illustrates, sources of GHG emissions are distributed throughout all sectors of the economy with no single fuel or sector responsible for a dominant share of overall emissions. Therefore, to confine regulation to one or just a few sectors or GHGs would be unfair and economically inefficient and would reduce program effectiveness.

In addition, limiting coverage of the program either to particular sectors or to particular types of sources creates the risk of "leakage," in which partial regulation encourages firms to shift emitting activities from regulated to unregulated sources. By means of illustration, consider the Regional Greenhouse Gas Initiative (RGGI), which is grappling with leakage issues resulting from the program's limited geographic scope and sector involvement. Under the RGGI, there is recognition that an approach that regulates power plants within the seven-state region could increase the price of electricity generated by those plants and encourage increased purchases of electricity from power plants outside the region covered by the RGGI program. This type of "leakage" can undermine both the effectiveness and efficiency of market-based climate policy.

¹ Duke Energy Corporation is a Fortune 500 company headquartered in Charlotte, NC, that supplies, delivers and processes energy for customers in the Americas. More information about the company is available on the Internet at: <http://www.duke-energy.com> Although Duke Energy and Cinergy have announced plans to merge in the near future, these comments reflect the views of Duke Energy. We understand that Cinergy expects to submit separate comments on the White Paper.

² Duke Energy's position on GHG policy can be found at <http://www.duke-energy.com/company/ehs/policies/gcc/>.

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Cost-effectiveness is also a significant issue. The promise of a market-based approach, such as a cap-and-trade program, is that it provides incentives for reductions in emissions by the sources that can implement reductions most cheaply.³ Yet, a cap-and-trade program with less than economy-wide coverage defeats this purpose because it fails to provide reduction incentives to unregulated sectors, which may represent low-cost reductions.

Thus, in evaluating several options for designing a national GHG cap-and-trade program, the Congressional Budget Office (CBO) concluded that a cap-and-trade program that was limited to the electricity-generating sector “would not produce emission reductions at the lowest possible cost to the economy (even if it minimized the cost of reductions from electricity generators) because it would not encourage reductions—or provide incentives for innovation—in other sectors.”⁴ On this basis, the CBO rated an electric sector-only approach below economy-wide alternatives in terms of cost-effectiveness.

In addition, a program that imposed the burdens of achieving reductions on only select sectors would raise issues of fairness and equity. Duke Energy shares the concern raised in the White Paper that a sector-specific approach “leaves open the question of whether it would ever be expanded to include more emitters, or whether further action to address climate change would be unfairly targeted to the sector already under regulation.”

Finally, as explained below, it is Duke Energy's view that an economy-wide approach – particularly if designed on an “upstream” basis – is far simpler to administer for both the government and for regulated entities than a fragmented, sector-by-sector downstream approach, or a “hybrid” approach that includes both upstream and downstream points of regulation.

³ Tom H. Tietenberg, “Economic Instruments for Environmental Regulation,” in *Economics of the Environment* 373 (Robert N. Stavins, ed. 2000); see also W. Baumol and W. Oates, *The Theory of Environmental Policy* (1985).

⁴ Congressional Budget Office, *An Evaluation of Cap-and-Trade Programs for Reducing U.S. Carbon Emission* (2001), at p. 23.

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Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

As explained above, Duke Energy strongly supports a federal mandatory market-based GHG reduction program that has economy-wide coverage and that maintains administrative simplicity – both for the government and for regulated entities. In Duke Energy's view, the cap-and-trade design that best achieves this objective for CO₂ emissions is an upstream approach.

Economy-wide Upstream vs. Other Approaches. Duke Energy agrees with the White Paper's observations that, relative to other approaches, placing the point of regulation upstream can: (1) reduce the number of sources to regulate and thereby simplify administration; (2) efficiently cover the full range of sources; and (3) encourage emission reduction activities throughout the economy. Economists generally support an economy-wide upstream approach to regulating GHG emissions. For example, in its evaluation of different cap-and-trade program designs (discussed above), the CBO gave its highest ratings on cost-effectiveness to an economy-wide upstream option.⁵ Note, however, that an upstream program can meet its cost-effectiveness potential only if the program imposes allowance surrender obligations on entities that do not face obstacles to adjusting the price of their fuel (or other regulated product) to reflect their compliance costs.

Alternative approaches have significant flaws. As the White Paper correctly observes, a downstream cap-and-trade approach cannot feasibly cover the entire economy because of the enormous number of small emission sources (*e.g.*, individual automobiles). Accordingly, reliance on a downstream program implies confining regulation to a limited number of large sources in a few sectors (likely large sources in the electric generation and industrial sectors), with all of the drawbacks described in the response to Question 1a, *i.e.*, leaving many emissions uncovered, introducing economic inefficiency and unfairness, and reducing program effectiveness.

Another option mentioned in the White Paper is to combine a downstream approach for large sources with other approaches for other sources, such as an upstream approach or regulation of automakers. However, these kinds of hybrid approaches also have substantial drawbacks. For example, combining a "large-source" downstream program with an upstream program to cover other sources of emissions will lead to fragmentation and greater administrative complexity. Depending on how a downstream/upstream program is designed, it

⁵ See Congressional Budget Office, *supra* note 4. See also See Ctr. for Clean Air Policy, US Carbon Emissions Trading: Description of an Upstream Approach 10 (1998), available at <http://www.ccap.org/pdf/upstpub.pdf>; and M. Ross and A. Smith, Upstream versus Downstream Implementation of Carbon Trading Systems with Revenue Recycling and Allowance Allocations, CRA Working Paper (2002).

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could result in double regulation, gaps in regulation, or distortion of fuel markets. For example, a downstream/upstream program would have to contend with the question of how to regulate natural gas-related emissions, given that natural gas is used both by “large sources” *and* smaller entities, such as residential users. Regulating large sources downstream plus natural gas on an upstream basis could lead to double regulation for some large sources.

Accordingly, Duke Energy strongly encourages the Committee to focus on an economy-wide, upstream regulatory approach if it is going to move forward with a cap-and-trade program. It is the approach most likely to achieve the objectives of cost-effectiveness, administrative simplicity and maximum program effectiveness.

Designing an Upstream Program. As the White Paper recognizes, an upstream approach can only meet its cost-effectiveness potential if it is designed such that allowance prices are passed through to end-users, who in turn can choose their lowest-cost options to reduce their emissions.⁶ For this reason, it is critical that the entities subject to upstream regulation do not face structural obstacles to adjusting fuel prices (or other regulated products) to reflect allowance costs under the program.

⁶ See White Paper, at p. 4 (an upstream program “may stimulate a wider range of emission reduction responses throughout the economy *assuming permit costs are passed on to end users.*”) (Emphasis added).

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

Duke Energy Corporation¹ (Duke Energy) appreciates the initiative taken by the Senate Energy and Natural Resources Committee to solicit public comment and initiate a policy dialog on design elements of a mandatory, market-based greenhouse gas (GHG) regulatory policy. In early 2005, Duke Energy adopted a corporate policy position supporting the establishment of a federal economy-wide market-based climate policy.²

The allocation of allowances without cost can provide an important mechanism for mitigating some of the particularly severe economic impacts and inequities that could result from a climate policy. Accordingly, Duke Energy urges the Committee to consider *gratis* allocation of a portion of the total allowances, with the understanding that some portion of allowances also should be auctioned to support related policy aims. Without more policy details about the timing and stringency of the regulatory program, Duke Energy is not in a position to recommend a distribution between allocated and auctioned allowances. However, Duke Energy strongly believes that certain principles should guide these allocation-related decisions, as discussed below.

Allocation of allowances. A critical point with respect to allowance allocations is that *decisions on how to allocate allowances should be independent of decisions made with respect to the point of regulation.* Duke Energy urges the Committee, in considering allocations, to focus on entities expected to incur significant costs or revenue losses from the program. Some of these entities might not be subject to regulation themselves, but could be affected by regulation of others, *e.g.*, through higher fuel prices or lower demand for their products. For example, the Energy Information Administration's (EIA) April 2005 analysis of the National Commission on Energy Policy's cap-and-trade proposal concluded that that program would reduce coal consumption below business-as-usual levels, implying that coal producers could incur revenue losses from a mandatory program, regardless of whether the point of regulation is upstream or downstream. The EIA also found that prices for delivered electricity would rise over time, which means that energy consumers also would be affected. The Committee could consider systems that would use allowance allocations to mitigate these types of impacts.

However, it is important to recognize that an allowance allocation system cannot be designed to eliminate all economic costs of a climate policy. In addition, precisely determining

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Question 2. Allocation

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the allocations needed to offset each individual entity's expected harms would be impossible. In any event, Duke Energy cautions that designing an allocation system is a highly complicated and controversial endeavor.

The number of allowances needed to mitigate economic harm is a function of the design of the climate policy. To the extent that the climate policy is designed to moderate the costs of the policy—*e.g.*, by starting gradually and providing price certainty – then there will be a smaller need to provide *gratis* allocations. Depending on policy design, the largest dislocations might be expected to occur where existing long-lived investments in capital plant (*e.g.*, coal-fired power plants) are significantly devalued. A gradual, long-term approach will provide opportunities to shift capital portfolios over time, thus reducing the economic costs of “stranded” investments.

Auction. Duke Energy believes that a portion of allowances can be auctioned by the government, which can make revenues available to achieve important policy aims, including supporting research, development, and demonstration of new technologies. It might also be necessary for the government to reserve some portion of auction or safety valve revenues for itself in order to offset erosion of the tax base resulting from the impact of emission limits on the GDP (assuming that the government does not want to reduce services or increase the deficit.)

Duke Energy urges the Committee to consider the above principles – including, in particular, the principle that decisions on allocations should not be determined by the point of regulation, but rather by the distribution of economic impacts resulting from the program.

Clarifying Questions 2a:

Technology R&D and Incentives

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?
- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

Without major innovations in technology, it will not be feasible to make meaningful reductions in GHG emissions or to stabilize atmospheric concentrations of GHGs. For this reason, it is critically important that any comprehensive climate change policy include a focused technology strategy that has stable and reliable funding and incentives.

To this end, an auction of allowances can provide substantial revenues that the government can use to support technology research, development and demonstration. Revenues from a safety valve mechanism also could be dedicated to these purposes. Regardless of the source of funding, however, it will be important for the Committee to consider approaches that can ensure that funds targeted for technology programs are not diverted to other uses, such as general revenues or deficit reduction.

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Clarifying Questions 2d:

Set-Aside Programs

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

It is Duke Energy's view that offsets can play an important role in expanding the coverage and cost-effectiveness of a cap-and-trade program. Even the best-designed economy-wide upstream program could not feasibly cover, for example, carbon sinks and certain sources of non-CO₂ GHG emissions. An offset program can make it possible to achieve additional low-cost emission reductions and removals from these otherwise unregulated sources and sinks. In this way, it can reduce the costs of the policy.

However, Duke Energy is opposed to an approach that draws credits for such offsets from the allowance pool. By definition, reductions from offset projects are *additional* to reductions from regulated sources. Thus, there is no rationale for making offset projects compete with reduction activities by regulated entities for the same pool of allowances. This approach defeats the market-based logic of offset projects. Regulated entities under a cap-and-trade program should be allowed to obtain and use qualifying offsets from unregulated sources to meet their compliance obligation.

Clarifying Questions 2e:

Special considerations for fossil-fuel producers?

- Would some upstream fossil fuel producers be unable to pass the cost of purchasing permits or allowances through in fuel prices if they are the regulated entity?
- Is there a sufficient policy rationale for addressing these costs to justify the complexity of setting up and administering an allocation system for these entities?
- What other options exist to address the inability of fossil fuel producers to pass through these costs?

In determining what entities should be subject to allowance surrender obligation in an upstream program, it is critically important to ensure that the regulated entities do not face regulatory or other obstacles to having compliance costs reflected in price paid by end users for fuel and other regulated products. Unless end-users see this “price signal,” the upstream program will likely not be effective in achieving the program goals.

Clarifying Questions 2f:

Allocations for downstream electric generators?

- Should electricity generators be included in the allocation if they are not regulated? (Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

The above questions raise important issues for Congressional consideration. To this end, we recommend that the Committee consider certain principles. First, there is no necessary link between the points of regulation and the recipients of allowance allocations. Rather, in determining allocations, we urge the Committee to consider what entities bear costs as a result of the policy. Thus, even with upstream regulation, electric generators could be expected to bear a significant proportion of the overall economic costs resulting from the climate policy. (Similarly, with a downstream approach for electric generators and other large sources, coal producers and miners might be expected to bear significant costs.) Duke Energy recognizes that assessments of burden and harm are complicated, but such assessments should give consideration to the burdens borne by electric generators.

If there is an additional topic related to the design of a mandatory market based program that you would like to address, please submit comments on this form.

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Duke Energy appreciates the opportunity provided by the Committee through this White Paper process to address issues related to the design of a mandatory market-based GHG emissions reduction program. In addition to the topics specifically addressed in the White Paper, Duke Energy has strong views on a number of other design issues as outlined below.

First, Duke Energy believes that a U.S. climate change policy should reduce GHG emissions gradually over a long time horizon, beginning the effort in the near term. Such an approach can give the economy a glide path into limits on emissions, allowing capital stock to turn over with a smaller risk of “stranded” investment. Duke Energy believes that this principle is consistent with the Sense of the Senate Resolution’s call for limits and incentives that “slow, stop and reverse the growth of such emissions at a rate and in a manner that . . . will not significantly harm the United States economy.” In Duke Energy’s view, the National Commission on Energy Policy’s (NCEP) proposal for a cap-and-trade program generally embodies an appropriate approach to timing and stringency.

Second, it is critically important that *any* comprehensive U.S. climate change policy include a focused, long-term technology strategy with reliable long-term funding. It will not be possible to make substantial reductions in GHG emissions without new technologies.

Third, it is Duke Energy’s belief that, in order to provide a safeguard that a program will “not significantly harm the United States economy,” the program should provide price certainty. For a cap-and-trade program, this kind of certainty can be achieved through a safety valve mechanism such as that reflected in the NCEP’s proposal. Indeed, most economists agree that a long-term strategy to reduce GHG emissions should involve an approach that imposes a gradually increasing price on emissions (or the carbon content of fuels) instead of emissions caps because the pricing approach is the most efficient way of managing uncertainties related to costs

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Additional Topics

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and benefits. A report issued by the Congressional Budget Office (CBO) in 2005 concluded that “[e]missions prices are more efficient than emissions caps.”³

To this end, Duke Energy urges the Committee to consider the full range of market-based approaches to climate change policy, including a carbon tax approach, which reflects the pricing method. Recognizing that the White Paper expressly limited its questions to issues surrounding the design of a cap-and-trade program, Duke Energy has focused its submission primarily on that approach. However, it is Duke Energy's strong belief that a carbon tax also deserves careful scrutiny by Congress.

In particular, Duke Energy respectfully disputes the White Paper's implicit characterization of carbon taxes as something other than a “market-based” approach.⁴ A carbon tax most assuredly *is* a market-based approach and is entirely consistent with the Senate of the Senate Resolution's directives on establishment of a climate change policy. Economists have long emphasized that the value of a carbon tax is that, like a cap-and-trade approach, it establishes a price for emissions in the economy, providing an incentive to firms and households to adopt their least-cost reduction options.⁵ Robert Hahn, Executive Director of the AEI-Brookings Joint Center, has stated: “Both fees and [tradable] permits have the potential to reduce costs relative to a command-and-control system by providing an incentive to search for the lowest cost reductions first.”⁶

Importantly, like an upstream cap-and-trade program, a carbon tax can be designed to achieve economy-wide coverage. Moreover, a tax approach offers greater administrative simplicity than a cap-and-trade program. Administering a carbon tax would not require the establishment of a national trading system, which would involve the development of new monitoring and accounting mechanisms both for the government and for the participating entities. For these reasons, the CBO recently concluded that a carbon tax would be “relatively simple to administer.”⁷ In particular, the many questions raised in the White Paper provide clear

³ Congressional Budget Office, *Limiting Carbon Dioxide Emissions: Prices Versus Caps* (2005), available at www.cbo.gov, at 2.

⁴ See White Paper, p. 1 (“We recognize that there are many ways to structure a regulatory program and that there are entirely different approaches that might include a carbon tax, technology incentives and voluntary programs, but we have limited our consideration here to ‘mandatory market-based systems’ contemplated by the Sense of the Senate Resolution.”)

⁵ For example, 2500 economists, including eight Nobel Laureates, signed a statement in 1997 calling for the application of market-based policies to address global climate change. Their statement included carbon taxes under the definition of market-based policies. The statement reads, in part:

The United States and other nations can most efficiently implement their climate policies through market mechanisms, such as carbon taxes or the auction of emissions permits. The revenues generated from such policies can effectively be used to reduce the deficit or to lower existing taxes.

See <http://www.rprogress.org/publications/econstatement.html>

⁶ Robert Hahn, *The Economics & Politics of Climate Change* (1998), at 15-16.

⁷ Congressional Budget Office, “Budget Options” (Feb. 2005), at p. 338 (Revenue Option 53).

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evidence of the difficulties that arise when trying to develop a fair and effective allowance allocation scheme for a GHG cap-and-trade program. With a tax approach, these difficulties would be largely avoided.

Indeed, the combination of price certainty and administrative simplicity offered by a carbon tax has led most economists to favor the tax approach over a cap-and-trade program, even if the latter incorporates a safety valve mechanism. Thus, the CBO has determined that a carbon tax is more likely to maximize total benefits relative to its costs.⁸

⁸ Congressional Budget Office, *Limiting Carbon Dioxide Emissions: Prices Versus Caps*, *supra* note 3.

Exelon

John W. Rowe/Exelon Corporation
Contacts: Elizabeth A. Moler; Joseph Watson, Jr.
elizabeth.moler@exeloncorp.com; joseph.watson@exeloncorp.com
(202) 347-7500

Executive Summary

Question 1

An economy-wide program is the best approach to reducing U.S. GHG emissions. This approach would avoid economic distortions across fuels and within domestic sectors. While some may argue that limiting the programs to select downstream sectors would be more expedient, it would likely displace or shift emissions rather than reduce overall U.S. or worldwide emissions. An economy-wide program will reduce GHG emissions from the lowest cost sources within the economy, causing the least economic disruption.

Upstream point of regulation for GHG emission reductions best assures administrative simplicity and program effectiveness. Upstream point of regulation assures that carbon from all fossil fuel sources is included, and lessens the administrative burden by limiting the number of regulated entities. While seemingly attractive in certain sectors, downstream or hybrid point of regulation is inherently more complicated from an administrative perspective and increases the potential for economic distortions among fuel sources and among economic sectors.

Question 2

To assure that the sudden adoption of a mandatory greenhouse gas program would not impose an undue economic burden on energy end users, policy makers should design a program that gradually transitions from free emission allowances to an auction. An example would be a program that begins by distributing 90% of allowances for free to mitigate fossil fuel price increases and un-reimbursed program costs during a defined transition period. The remaining 10% of allowances would be sold at auction, with the auction proceeds used to fund other public policy objectives, such as research and development, low income assistance, adaptation development, etc. Over time (say 40 years), free allowances would be phased out, and the percentage of auctioned allowances would grow to 100%.

There is no single set of criteria or method that would satisfactorily allocate free allowances across the entire economy. Allocations would have to be performed by an administrative agency that had the authority and resources to consider a wide variety of regional, industry and company specific factors. There nonetheless are a number of common principles that the agency should apply in performing allocations, suggestions for which are enumerated in our response.

In the electricity and natural gas sectors, allowances should be allocated to state regulated electric and gas distribution companies, rather than electrical generators, to assure that end users and consumers, who will see the price of greenhouse gas regulation in their energy bills, get the benefit of the free allowances. As a general principle, free allowances should not be given to other entities to further other public policy objectives. Limiting the distribution of free allowances in this way would protect against both windfalls and undue economic burdens.

Questions 3 and 4 – See the attached documents for responses to these questions.

Who is regulated and where?

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

Short Answer

An economy wide approach will best serve the objective of building a fair, simple and rational program for greenhouse gas regulation. Greenhouse gases arise predominantly from the use of fossil fuels by every sector of the U.S. and world economy. Successfully reducing those emissions will require both a comprehensive regulatory program, and substantial new investment in low carbon energy alternatives. To avoid economic distortions across fuels and within domestic sectors, an effective U.S. regulatory program should be economy-wide, and preferably upstream, at the point where fossil fuels enter the economy. To encourage investment and affect consumer behavior, it must ensure that compliance costs are accurately reflected in fossil fuel prices. To avoid economic distortions between nations, it should be expressed in terms of intensity per dollar of economy-wide gross domestic product, and calibrated against but not conditioned upon international participation. While some may argue that limiting the program to selected downstream sectors would be more expedient, in the end such an approach would likely displace or shift emissions within domestic sectors rather than reduce overall U.S. or worldwide emissions. It would also delay, and might actually impede, the implementation of an economy wide approach. Climate change is a century scale, worldwide problem – it cannot be successfully addressed by short-term, limited or expedient measures.

Discussion

An effective greenhouse gas program must treat all fossil fuels, and all sectors of the U.S. economy, equally. No single fuel, and no single sector of the U.S. economy, is responsible for the majority of U.S. greenhouse gas emissions. By sector, 39% of greenhouse gas emissions arise from the production (and use) of electricity, 33% arise from the transportation sector, and the remaining 28% result from heating and other uses of energy. By fuel type, 35% of greenhouse gas emissions come from coal, 20% from natural gas, and 44% from oil.¹ Almost by definition, a fair, simple, and rational greenhouse gas program must be economy-wide, addressing emissions from each economic sector, and each fossil fuel. An economy-wide policy will create the right incentive to reduce carbon emissions from the lowest-cost sources in the economy first, thus causing the least economic disruption. And in the long run, an economy-wide approach will cost less.²

¹ EIA, *Emissions of Greenhouse Gases in the United States 2004*, December 2005 (“EIA 2005”).

² See, e.g., William Pizer, Dallas Burtraw, Winston Harrington, Richard Newell, and James Sanchirico, *Modeling Economy-wide vs. Sectoral Climate Policies Using Combined Aggregate-Sectoral Models*, Resources for the Future Discussion Paper, October 2004 (“RFF 2004”); Lawrence H. Goulder and William A. Pizer, *The Economics of Climate Change*, November 2005 (forthcoming); Electric Power Research Institute Climate Brief, *Upstream and Downstream Approaches to Carbon Dioxide Regulation*, January 2005; and Andrew Keeler, *Designing a Carbon Dioxide Trading System: The Advantages of Upstream Regulation*.

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Similarly, no one country is responsible for controlling worldwide greenhouse gas emissions. Energy use is a function of economy-wide economic activity, or GDP. While the U.S. is responsible for approximately 24% of worldwide carbon dioxide emissions, it is also the source of approximately 21% of world GDP.³ A fair and effective regulatory program should measure and control GHG emission intensity as a function of GDP to encourage economic equity. And while the U.S. should not make the adoption of greenhouse gas regulation contingent on international participation, it should carefully monitor worldwide compliance to guard against inequitable wealth transfers among nations.

To be effective, any long-term regulatory program to control U.S. greenhouse gas emissions must first slow, then stop and ultimately reduce emissions. It must do so without imposing undue economic burden within the domestic economy, or disadvantaging the U.S. economy against other world economies. Yet it must ensure that the actual cost of compliance is accurately reflected in fossil fuel prices to both encourage investment in energy alternatives, and affect consumer behavior.

Imposing a modest federal tax on carbon is perhaps the most equitable method of regulating greenhouse gas emissions on an economy wide basis. A tax has the virtue of being transparent, easily administered, and readily translated into a price signal. Alternatively, a cap and trade system with a safety valve, such as that recommended by the National Commission on Energy Policy (“NCEP”), could provide a fair and rational economy wide system of greenhouse gas regulation without imposing undue economic burden on the U.S. economy. The initial target would be a 2.4% annual reduction in GHG intensity, based on equivalent CO₂ emissions per dollar of U.S. Gross Domestic Product, for the first ten years of a reduction program. After year ten, consideration should be given to increasing the annual GHG intensity reduction target to 2.8% per year. The first target of 2.4% is intended to slow the growth of GHG emissions, and the subsequent 2.8% target is intended to stop further GHG emissions growth.

To assure certainty of compliance costs, however, any cap and trade system must also include a so-called “safety valve.” A safety valve will effectively cap compliance costs for greenhouse gas emitters, and ultimately the U.S. economy, thereby guarding against undue economic burden. The \$7 per metric ton limit for CO₂ equivalent emissions proposed by the NCEP, increasing at 5% per year thereafter, would be an effective safety valve.

³ CO₂ data from EIA 2005; GDP Data 2005 estimate from U.S. CIA, *World Factbook Online*, <http://www.cia.gov/cia/publications/factbook/rankorder/2001rank.html>, accessed March 9, 2006.

Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

Short Answer

An upstream point of regulation (e.g. regulation of fuel providers such as oil refineries and import terminals, natural gas shippers at pipeline/import terminals, and coalmines) best assures administrative simplicity and program effectiveness. Upstream regulation assures that carbon from all fuel sources is subject to the same regulation, and lessens administrative burden by limiting the number of regulated entities. While seemingly attractive in certain sectors, downstream or hybrid regulation (where different economic sectors have different points of regulation) is inherently more complicated from an administrative perspective, and increases the potential for economic distortions between fuel sources and within economic sectors.

Discussion

Upstream regulation is administratively simple because it measures carbon content at the point of input to the U.S. economy. It also minimizes the number of regulated entities while at the same time assuring that all emission sources are covered, avoids “leakage” (i.e., the ability of emissions to shift from U.S. sources to non-U.S. sources) and assures administrative simplicity and program integrity by encouraging data consistency, transparency, and accuracy (i.e., fuel type and quantity imported, produced, and shipped).⁴

Upstream regulation is effective because it is economically efficient, and fair. It regulates carbon emissions from all fuel sources and within all sectors equally, and is indifferent to the source of carbon reductions. By sending an appropriate price signal, it promotes production and end use efficiency, and encourages innovation and economically efficient solutions, such as fuel switching or substitution.

However, some argue that upstream regulation requires a very high price to elicit a significant market response, and that it would be more appropriate to regulate entities that have options to reduce their GHG emissions, rather than fuel providers. Still others argue for a “hybrid” system of regulation - downstream regulation for electricity generation (not unlike the current regulations for NO_x and SO₂) and upstream regulation for oil and gas. Since most coal is burned at electric generators or large industrial sources, they argue that regulating electric power plants is an effective way to capture most of the carbon from coal.

⁴ Compliance reporting in an economy-wide program could be readily adapted from existing mandatory federal fuel data collection and survey forms. For examples of existing reporting requirements, see (1) (for petroleum/refineries) Form EIA-810, *Monthly Refinery Report*, EIA-820, *Annual Refinery Report*, and Form EIA-814, *Monthly Imports Report*; (2) (for natural gas) Form EIA-176, *Annual Report of Natural and Supplemental Gas Supply and Disposition*, and EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; (3) (for coal) EIA-7A, *Coal Production Report*, EIA-6A, and *Coal Distribution Report – Annual*; and (4) (for electricity consumption) Form EIA-826, *Monthly Electric Sales and Revenue with State Distributions Report*. Further, conversion of such fuel data to CO₂ emissions is well understood and reliable. For detail on the conversion to CO₂ of carbon in fuel, see EIA, *Documentation for Emissions of Greenhouse Gases in the United States 2003*, May 2005.

Question 1. Point of Regulation
John W. Rowe/Exelon Corporation

Yet downstream or hybrid approaches dramatically increase the number of regulated entities, thereby increasing administrative burden. Downstream approaches also raise serious questions about economic efficiency and equity in terms of potential price distortions across fuels, within sectors, and particularly within the electricity sector.

Question 2. Allowance Allocation
John W. Rowe/Exelon Corporation

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

Short Answer

To assure that the sudden adoption of a mandatory greenhouse gas program wouldn't impose an undue economic burden on energy end users, policy makers should design a program that gradually transitions from free emission allowances to auction. An example would be a program that begins by distributing 90% of allowances for free to mitigate greenhouse-gas-related fossil fuel price increases and un-reimbursed program costs during a defined transition period. The remaining 10% of allowances would be sold at auction, with the auction proceeds used to fund other public policy objectives, such as research and development, low income assistance, adaptation development, etc. Over time (say 40 years), free allowances would be phased out, and the percentage of auctioned allowances would grow to 100%.

There is no single set of criteria or method of allocation that would satisfactorily allocate free allowances across the entire economy. Allocations would have to be determined and issued by an administrative agency that had the authority and resources to consider a wide variety of regional, industry and company specific factors. There nonetheless are a number of common principles that the agency should apply in performing allocations, suggestions for which are enumerated below.

In the electricity and natural gas sectors, allowances should be allocated to state regulated electric and gas distribution companies, rather than electrical generators, to assure that end users and consumers, who will see the price of greenhouse gas regulation in their energy bills, get the benefit of the free allowances. The only caveat would be that state regulators should use the proceeds from the sale of allowances into the market to provide a benefit to consumers in a way that does not blunt the greenhouse gas related price signal. As a general principle, free allowances should not be given to other entities to further other public policy objectives. Limiting the distribution of free allowances in this way would protect against both windfalls and undue economic burdens.

Discussion

Most economists would agree that an auction is the most efficient way to distribute allowances. A competitive auction is the simplest and most transparent way to reflect the allowances' true economic value. But the sudden adoption of an auction for all greenhouse gas allowances with the onset of regulation would give producers and consumers little time to react to increasing energy costs brought on by carbon regulation. Although the National Commission on Energy Policy proposal included a relatively modest \$7 a ton safety valve, there is still a real potential for economic disruption and undue burden. The better approach would be to phase in the auction over an extended period of time, say 40 years, to give the economy time to react. In the interim, the majority of greenhouse allowances could be allocated for free.

Yet the free allocation of allowances poses almost as many problems as it solves. It would be impossible to legislate a single set of criteria, formulae or metrics that would equitably allocate allowances across the entire economy. There are a myriad of factors, many of which are specific to individual sectors, individual fuels, specific geographic regions, and individual

customers and companies that should be considered as part of the allocation decision. As a consequence, the successful determination of allowances would have to be performed by a federal administrative agency with sufficient authority and resources to perform the task over an extended period of time.

Nonetheless, enabling legislation could and should articulate general principles for the agency to follow in allocating free greenhouse gas allowances. We would suggest the following principles as a starting point:

- **Allocations are intended to mitigate undue economic burden – they should not result in windfalls or economic advantage**
- **Allocations can be made to upstream regulated entities and downstream energy intensive industries who demonstrate that they have incurred un-recovered program costs**
- **The majority of allowances should go to or be for the benefit of consumers and downstream energy end users, who bear the ultimate cost of greenhouse gas regulation**
- **Allocations should not be used to distort greenhouse gas price signals**
- **Allocations should not impede real greenhouse gas reductions**
- **Allocations should not be used to fund other public policy objectives, such as research and development or low income support – these programs should be funded by auction proceeds**

The electricity sector is a perfect example of both the complexities and benefits of a free allocation program. Electric generation is by definition an energy intensive industry, one that should be considered for the downstream allocation of free allowances. In 2004, 92% of the coal consumed in the U.S. was used to produce electricity.¹ There are innumerable regional, fuel-related, company-related, resource-specific issues that would have to be considered in allocating allowances to this sector.

Yet there is one issue that sets this sector apart from all others, and would require special consideration in the allocation process. That issue is how greenhouse gas regulation would affect consumer prices in jurisdictions that still regulate generation, as opposed to jurisdictions that rely on competitive wholesale markets. In an upstream economy-wide system, the cost of carbon regulation should be reflected in the cost of coal for all generators, regardless of jurisdiction. If free allowances are given to downstream electrical generators without regard to their regulatory status, however, there is a high likelihood that consumers in different regions will be treated differently. In states with traditionally regulated electric industries, normal regulatory practice would require that the costs of allowances received by the utility for free

¹ EIA, *Emission of Greenhouse Gases in the United States 2004*, December 2005.

Question 2. Allowance Allocation
John W. Rowe/Exelon Corporation

and used in the process of power generation would, in effect, offset higher fossil fuel costs resulting from the upstream regulation of carbon in coal. In other words, the value of free allowances would be netted against increased costs. Consumers would see little carbon-related cost in their rates - the price signal of greenhouse gas regulation would be blunted.

By contrast, in competitive markets, the normal market response of an unregulated generator would be to reflect the higher cost of fuel brought on by greenhouse gas regulation in the wholesale price it charges for its generation. Whether or not the generator receives allowances for free, the prices for power production would tend to reflect the full opportunity costs of marginal power producers – which typically are fossil-fired generators. And opportunity cost pricing would result in consumer prices that reflect the full cost of greenhouse gas regulation. If free allowances are provided to electric generators in these markets, it is more likely that electricity consumers would not be provided any financial relief, even though they would see the real cost of GHG compliance in prices. Unregulated generators would likely sell the allowances in the marketplace, and realize a windfall.

To address this issue, and consistent with the general principles suggested above, we would urge policymakers to allocate free allowances in all jurisdictions not to electrical generators, but to state regulated local distribution companies for the beneficial use of electric customers. The allocation to such local distribution companies should reflect the carbon content of their overall electric supply.² State regulators could then assure that the benefit of the free allocations went to the consumers and end-users that ultimately pay the price for carbon regulation.

The only caveat would be that state regulators should not use the allowances to directly offset fossil fuel prices – the allowance proceeds should be used in a way that doesn't blunt the price signal. Examples might include using the allocation to fund a separate greenhouse gas credit or rebate, or using the proceeds to fund special programs for energy efficiency or other public policy purposes.

Since local gas distribution companies are likewise regulated at the state level, a similar free allocation process could be adopted for natural gas.

² Thus, no allowances would be allocated to kWh sales from generation that is not subject to carbon regulation, such as renewables or nuclear.

Question 3. International Linkage
John W. Rowe/Exelon Corporation

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

Global climate change is a worldwide problem that ultimately will require all nations to take action to reduce greenhouse gas emissions. Exelon believes that it is prudent, therefore, to design a U.S. system that would allow for trading with other nations' greenhouse gas cap-and-trade systems. Any trading of credits between U.S. and other nations' programs should only be allowed in cases where the traded credits are real, measurable, additional, and verifiable. International trading has the potential to allow for lower cost compliance, to the extent that such trading provides access to lower cost credits than are available in the U.S.

Exelon is also supportive of a U.S. program that allows for project-based emission offsets from international sources (in addition to domestic offset sources) provided that the offset projects are real, measurable, additional, and verifiable. Such international offsets could provide lower cost compliance options to regulated entities in the U.S. versus other alternatives.

Clarifying Question 3a:

- Do the potential benefits of leaving the door open to linkage outweigh the potential difficulties?

As a practical matter, in the short-term, the safety valve approach proposed by the National Commission on Energy Policy provides the U.S. with an assurance that costs of a U.S. climate change program will be contained and managed over time. In this sense, resolution of the international trading question does not need to be answered prior to commencement of a U.S. climate change program and resolution of this issue should not be the basis for delaying action on a U.S. based program.

As previously mentioned, however, longer-term, Exelon believes that the door should be left open to international trading as a potential means of allowing regulated entities in the U.S. to access lower cost international options where they exist. Efficiency and cost-benefits may also accrue to U.S. multi-national companies from international trading to the extent that such companies can work with internationally fungible compliance currencies and manage their U.S. and foreign nation compliance on more of a “portfolio basis,” taking the most cost effective actions possible on their operating systems, whether overseas or in the U.S.

Question 4. Developing Country Participation

John W. Rowe/Exelon Corporation

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?

Exelon agrees with the National Commission on Energy Policy recommendation that it would be prudent for Congress to articulate in any climate change legislation a process by which the U.S. will periodically review the status of its program against the status of programs in other key nations and consider whether adjustments to the U.S. program should be made to slow, or advance, the pace of the U.S. program. However, the timing of these reviews needs to be balanced against the industry’s desire for regulatory certainty. Further, any adjustment in the pace of GHG reduction must provide for some level of international leadership by the U.S.

General Electric

Submitter's Name/Affiliation: Stephen Ramsey/David Slump/General Electric Company
Contact: Larry Boggs, Email: larry.boggs@corporate.ge.com Phone: 202.637.4126

1. Point of regulation: Ultimately, an economy-wide system that would include all sources, sectors and GHGs would be most equitable, but in reality, the complexities of implementing an economy-wide system initially could create substantial disruption to the US economy and an overwhelming administrative burden for the government, while not optimizing the outcome for any sector of the economy.

2. Allowance allocation: Assuming a cap and trade system is adopted: The cost of regulation should be mitigated to minimize impacts on economy, and allowances are an appropriate mechanism for achieving this result. Most allocations should be provided free in the early stages. An appropriate percentage of allowances should be reserved for R&D and to stimulate early adopters that deploy newer, cleaner technologies in the electricity generating sector, including new nuclear, IGCC and renewables and cleaner, more efficient transportation technologies.

3. Linkage: By connecting with other GHG trading systems around the world, the US can achieve the greatest emissions reductions at the lowest cost.

4. Encouraging Comparable Action: It is important for major developing countries to participate in GHG reductions, and the NCEP plan represents one approach to achieving that objective. The most useful metrics in comparing programs would be the countries' percentage change in GHG emissions – both in absolute terms and relative to their change in GDP. There are a number of steps the US could take to encourage participation by developing countries.

Additional Topics: 1. GE supports development of market-based programs to slow, eventually stop, and ultimately reverse the growth of emissions of greenhouse gases (GHGs). The program should not unreasonably inhibit growth, as growth coupled with incentives will provide the resources necessary for industries to modernize with cleaner, more efficient technologies. The design of a market-based program needs to carefully consider the impact on the national goal of energy security and our need to expand our utilization of abundant, indigenous coal. The most critical element for any program, whether economy-wide or sector-based, is inclusion of a mechanism that assures that carbon is priced in the energy equation. 2. Climate change can most effectively be addressed by technology. Technology-forcing incentives and requirements are a necessary element of any program. If the program's objective is to slow, eventually stop, and ultimately reverse the growth in emissions, public policy should encourage parallel efforts (a) to accelerate deployment of existing, proven lower emitting technologies to slow emissions, and (b) to encourage development of next generation, break-through technologies to stop and reverse emissions. GE has a range of technologies in both the electricity generating and transportation sectors and in consumer and industrial applications that are cleaner and more efficient. These technologies could help to slow the growth in GHG emissions. 3. We recommend that the Committee consider an independent evaluation of the benefit of implementing a comprehensive program of GHG reductions on the one hand versus the impact on our economy of implementing such a program on the other hand. The evaluation should be completed as soon as possible.

Question 1. Point of Regulation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric Company

Who is regulated and where?

Clarifying Question 1a:

- **Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?**

GE Response:

- Ultimately, an economy-wide system that would include all sources, sectors and GHGs would be most equitable, but in reality, the complexities of implementing an economy-wide system initially could create substantial disruption to the US economy and an overwhelming administrative burden for the government, while not optimizing the outcome for any sector of the economy. A phased-in, sector-based approach would allow for sector optimization and be consistent with historical US regulatory practice, as well as programs for GHGs in other countries. Because electricity generation and transportation sectors represent approximately 40 percent and 30 percent, respectively, of US GHG emissions, it would seem reasonable to include these sectors in initial phases.
- To slow emissions in the electricity-generating sector where the useful life of infrastructure is 50 years or more, any climate change program should encourage in the installation of new generating capacity the maximum use of technologies that are carbon free (nuclear, renewable) or, in the case of new fossil fuel construction, plants that are designed to allow for future reconfiguration for carbon capture. The program should also encourage a sensible phased turnover in older, less efficient and higher emission existing infrastructure and technologies. Any program should be implemented consistent with other important national priorities, including energy security and fuel diversity.
- Fairness ultimately requires inclusion of all GHGs within any mandatory program. However, simplicity and limiting potentially adverse economic impacts to the US economy may be best served by phasing in covered gases, beginning with CO₂. According to DOE's Energy Information Administration (EIA, 2002), 82 percent of total US annual anthropogenic GHG emissions are CO₂ from fossil fuel combustion. Until included, reductions in other GHGs could be used as offsets by regulated sectors.
- To set us on the road to an economy wide program, any legislation should:
 1. Provide for a mandatory inventory and registry of all significant sources of all GHGs in all sectors of the US economy; and
 2. Allow entities in covered sectors to meet some part of their requirements through purchase of offsets from verifiable reductions in any GHG on a carbon equivalent basis from entities in non-covered sectors (or non-covered operations in a covered sectors).

Question 1. Point of Regulation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric Company

Clarifying Question 1b:

- **What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?**

GE Response

- From the perspective of program effectiveness and administrative simplicity, the place to regulate the electricity generation sector would be at the emission source. It is at this point that there would be the greatest flexibility to alter behavior. This point of regulation is also consistent with regulatory practice under the Clean Air Act, including the SO₂ trading program.
- With respect to the air transport sector, we would note that it is important to understand the unique characteristics of this sector.
 - Greenhouse gas emissions from aviation result from the combustion of petroleum based jet fuel. There currently are no viable alternative fuels. Switching to a lower emitting fuel is not an option as in many other industries. Second, due to flight safety considerations and the added weight involved, the application of CO₂ capture technologies also is not a viable option to reduce emissions. Finally, aircraft engines are complex, high technology equipment that require extensive engineering review for even small design changes in order to ensure safe, reliable operation. Thus, the air transport sector has limited options to reduce greenhouse gas emissions when compared to stationary sources of greenhouse gases.
 - The amount of carbon dioxide released from aviation is directly proportional to the amount of fuel that is burned. Thus, reducing greenhouse gas emissions from aviation is a function of reducing the amount of fuel that is burned. The key, however, is to accomplish this goal without negatively impacting the volume of air traffic which in turn would have a negative impact on the economy as a whole. The only viable solution then is to improve the fuel efficiency of air transport. This is best accomplished by providing incentives and technology development assistance.
 - Inclusion of air transport in a mandatory market-based emission-trading program likely would result in few emission reductions from the air transport sector itself. Because of the unique characteristics of this sector as outlined above, the cost of emission reductions from this sector generally will be higher than from stationary sources. The result is that the air transport sector will buy emission credits from stationary sources with lower costs of reductions. In essence, the air transport sector would be funding emission reductions from other industries without any benefit to the air transport sector itself. Given the precarious financial condition

Question 1. Point of Regulation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric Company

of the air transport sector in the United States, such a transfer function is not desirable. Rather, policies should be implemented that provide technology development and deployment incentives to improve the fuel efficiency of air transport.

- As a final matter, regulatory priorities must be evaluated to ensure a proper balance between competing goals. While across-the-board reductions in all categories of emissions are a desirable goal, optimizing an aircraft engine to reduce one pollutant (e.g., NO_x) may result in increases in CO₂ emissions. Consideration of these tradeoffs must be made before embarking on a course of action.
- With respect to the rail transport sector, it is critical for policies to acknowledge the relative efficiencies of the various transportation modalities. When viewed in terms of fuel intensity of passenger/freight transport (measured as energy/passenger or freight-km), rail transport is far less energy intensive. Considering the long lead times and technological hurdles that still must be overcome before alternative fuels become commercially viable in the transport sector, policies should be adopted that maximize the use of efficient rail transport.

Question 2. Allocation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

- Assuming a cap and trade system is adopted, the cost of regulation for sectors subject to any mandate should be mitigated to minimize impacts on economy, and allowances are an appropriate mechanism for achieving this result. Others include tax incentives for deployment of cleaner, more efficient technologies, such as the production tax credits for renewable energy technologies.
- Most allocations should be provided free in the early stages of the program. As the program matures, consideration should be given to providing the allowances on the basis of rewarding progress in reducing GHG emissions compared to others in the regulated sector.
- Generally speaking, allowances should not be provided to entities in sectors not subject to a mandate. Non-regulated entities should be authorized to sell set-offs for reductions made in GHG emissions to regulated entities for use in complying with their mandate to promote the most cost effective response.

Question 2. Allocation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Questions 2a:

Technology R&D and Incentives

- **What level of resources should be devoted to stimulating technology innovation and early deployment?**
- **What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?**
- **What criteria should be used to determine how such funds are spent and which projects are chosen?**
- **What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.**

GE Response:

- Assuming a cap and trade system, an appropriate percentage of allowances should be reserved to support research and development and to stimulate early adopters that deploy newer, cleaner technologies, including new nuclear reactors, IGCC and renewables in the electric generating sector and cleaner, more efficient transportation technologies.
- The level to be reserved for these purposes cannot be answered with precision until the stringency and timing of the carbon reductions are established. In the absent of clearer direction, we have no reason to disagree with the suggestion of reserving 10 to 15% of allowances made by the National Council on Energy Policy.
- Whether the program is directed through the appropriations process or through a non-profit consortium is less important than a clear mandate on priorities from Congress and consistent congressional funding of the effort, preferably over a period of years with minimum of three being necessary with an annual report to Congress to assure appropriate oversight.
- We would recommend criteria on funding and project choices:
 - (1) Potential for greatest reduction in emissions, and greatest increase in efficiency,
 - (2) The ability of the technology/project to be commercialize in a reasonable period of time,

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- (3) The qualifications and resources of the applicant for funds to perform.
 - (4) A requirement for cost sharing between the government and the private party, and
 - (5) A preference for applicants that can produce a complete system.
- We believe that an array of other incentives should be included in any legislations,

Question 3. International Linkage

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

- If and when there is a cap and trade system in the US, the answer is yes.
- By connecting with other greenhouse gas trading systems around the world, the United States can achieve the greatest emissions reductions at the lowest cost. Because the location of greenhouse gas emissions is not a factor in their warming impact, a ton of emission reduction in India has the same environmental benefit as a ton of emission reduction in the United States. Yet the costs of achieving that ton of emission reduction may be far less in India than it would be in the United States.
- In addition, by making U.S. investors eligible to utilize credits generated in other countries, the United States can increase investment in emission-reducing projects and promote U.S. exports of environmentally friendly technologies.
- Finally, companies operating in a number of jurisdictions would face lower total costs if they could utilize excess allowances/credits from one jurisdiction for their needs in other jurisdictions.

Question 3. International Linkage

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Question 3a:

Do the potential benefits of leaving the door open to linkage outweigh the potential difficulties?

- We believe that the benefits described in the previous response would outweigh the difficulties. The benefits will take the form of achieving greater environmental benefits at a lower cost to U.S. industry, and promoting U.S. exports.
- The difficulties may include creating a mechanism to ensure that property rights in emission reductions are acceptable to all parties. However, this challenge would not be unique to the United States, and by the time the United States enacts legislation, the European Union, Canada, Japan and many other nations might already have addressed this issue.

Question 3. International Linkage

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Question 3b:

If linkage is desirable, what would be the process for deciding whether and how to link to systems in other countries?

- The most important consideration in whether or not to link to another country's system should be the degree of confidence in GHG reduction credits authorized by that country. Specific characteristics required would be measures that:
 1. Create a clear property right in the greenhouse gas reductions
 2. Assure that the credits represent actual reductions of greenhouse gas emissions in the volume specified
 3. Document that the seller of credits has exclusive rights to those credits

Question 3. International Linkage

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Question 3c:

What sort of institutions or coordination would be required between linked systems?

- Linkage between the United States and other systems would probably require bilateral or multilateral agreements to ensure that the systems share the common characteristics outlined in answer to the previous question. This need not be carried out through a permanent body or institution.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?

- It is important for major developing countries to participate in GHG emission reduction, and the NCEP plan represents one approach to achieving that objective. Other options could include incorporating commitments into the trading integration agreements signed by the United States. For instance, agreements signed by the United States could include provisions making the agreement contingent on the utilization of cleaner, more efficient coal technologies for future coal-fired power plants. Another approach would be to authorize entities in sectors subject to a mandatory program in the United States to comply with some proportion of their requirements through offsets in developing countries.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Question 4a:

What metrics are most valuable for comparison of developed and developing country mitigation efforts to U.S. efforts?

- The most useful metrics would be the countries' percentage change in GHG emissions – both in absolute terms and relative to changes in their GDPs.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

Clarifying Question 4c:

Are there additional incentives that can be adopted to encourage developing country emission reductions?

- The following incentives would facilitate the early deployment of low and zero-emission technologies, and therefore encourage overall developing country emission reductions:
 1. Special, highly focused commercial advocacy for U.S. exports of GHG emission reduction equipment and services, as well as U.S. Government programs and financing.
 2. U.S. Government-sponsored trade missions, conferences and other programs to bring together buyers and sellers of GHG reducing technology. The U.S. Government goal for these events should be to ensure that importers and exporters understand the available technologies and all existing programs, including financing, to encourage their use.
 3. Utilize available research funding to support customization of technologies for developing countries. For instance, programs for the gasification of coals could include a program for the gasification of Indian coals.
 4. Utilize available U.S. financing, particularly mixed credit programs (USAID grants combined with US EXIM loan guarantees) to support transactions, including in situations where U.S. firms are competing against foreign tied aid. When foreign firms are allowed to build flagship demonstration projects, they will be best positioned for future projects in that country or region. (Note that the U.S. Trade Promotion Coordinating Committee has called for greater use of mixed credits, but this has not been consummated, even where foreign tied aid has been demonstrated.)
 5. Starting with the most significant GHG emitters, conduct a country-by-country inventory of policies (including U.S. policy) that act as barriers to the application of emission-reducing technologies, and develop proposals to remove those barriers. This should include action to remove all tariffs on energy efficient and renewable power generation equipment, as well as other trade barriers to emission-reducing equipment.
 6. Examine the potential to create trade preferences among countries that apply environmentally friendly technologies.
 7. Create value for carbon. This is the most important way to make a difference in the application of GHG emissions technology. Giving a value to those reductions will change the economics of thousands of private sector decisions, altering those

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for **General Electric Company**

decisions in favor of GHG emission reducing technologies. The two key elements of giving value to the carbon emission reductions are to *create a property right* in the reductions and to *create demand* for the ownership of those property rights. The Clean Development Mechanism (CDM) offers a model for creating emission reduction credits, which could be made a property right, albeit a model whose process is too slow and cumbersome. Ways to create demand for those units could include --

- Allowing companies to make some or all of their payments to governments – e.g., concession fees, customs tariffs, offset requirements, and other taxes -- with the new units. (This would require the governments involved to set a price for the new units or to create some other price-setting mechanism.)
- Negotiating contracts between private companies and governments in which the private company commits to reduce its GHG emissions by a certain percent, including the potential for achieving reductions through the purchase and ownership of these new units. These contracts would be entered into voluntarily, and would then be binding on the two parties once concluded. Such contracts would have to include clear and meaningful enforceable penalties for failure to comply with reduction commitments.

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric

If there is an additional topic related to the design of a mandatory market based program that you would like to address, please submit comments on this form.

1. GE's Suggestions on Key Program Elements

- GE supports development of market-based programs to slow, eventually stop, and ultimately reverse the growth of emissions of greenhouse gases (GHGs).
- The program adopted should provide a fair distribution of emissions reductions proportionate to a sector's contribution.
- The program should not unreasonably inhibit growth, as growth coupled with incentives will provide the resources necessary for industries to modernize with cleaner, more efficient technologies.
- Early adopters should be rewarded in any system, and the program should continue and expand incentives, such as a long-term production tax credit, for renewable and innovative energy sources.
- Consideration should be given to a national renewable or carbon portfolio standard to provide consistency across the country.
- Proposed legislation should incorporate incentives for increased energy efficiency requirements for buildings, heating, air-conditioning, lighting, motors and other products as those sources of emissions can be great opportunities to reduce energy demand.
- The design of a market-based program needs to carefully consider the impact on the national goal of energy security and our need to expand our utilization of abundant, indigenous coal. The use of coal for power is just one facet of the energy security picture, but coal-to-liquids, coal-to-chemicals and coal to synthetic natural gas holds the promise of a significant reduction of our dependence on foreign oil and increasingly, foreign supplies of liquefied natural gas. With the recent escalation of oil and gas prices, the economics have turned positive for displacement by coal-based products. The uncertainty of regulatory treatment of coal-based plants represents a risk that could inhibit investment in these technologies. Any plan should provide for allocations that allow these coal-based approaches to be fully developed consistent with carbon reduction goals.
- Coal-to-hydrogen represents an opportunity for affecting the transportation and industrial sectors in a way that is consistent with both our energy security and carbon reduction goals. For example, IGCC can be configured to produce both hydrogen and power with carbon capture and sequestration. Incentives for accelerated development of this option – both from the demand and generation sides – need to be included in an overall plan.

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric

- The most critical element for any program, whether economy-wide or sector-based, is inclusion of a mechanism that assures that carbon is priced in the energy equation. Without a value for carbon, older, higher emitting technologies will continue to dominate the market place as they have a price advantage over newer, cleaner technologies that cannot be overcome until costs of emissions are monetized and a sufficient number of such cleaner technologies are built and operational. An example is IGCC Cleaner Coal Technology with the capacity for carbon capture.
- Climate change can most effectively be addressed by technology. Technology-forcing incentives and requirements are a necessary element of any program. If the program's objective is to slow, eventually stop, and ultimately to reverse the growth in emissions, public policy should encourage parallel efforts (1) to accelerate deployment of existing, proven lower emitting technologies to slow emissions, and (2) to encourage development of next generation, break-through technologies to stop and reverse emissions. Technology research initiatives should be facilitated primarily through a robust public-private research and development program. A strong preference should be given to technologies that expand our ability to re-establish the US as a technology leader in the energy sector by generating opportunities to export lower emitting technologies to developing and rapidly growing countries.

2. GE Technologies

GE Energy: GE builds a range of technologies for solar, hydro, wind, waste gases, oil and gas, coal, and nuclear applications for the energy industry whose widespread adoption in the U.S. and worldwide will help to slow the growth in emissions of GHG.

Solar Energy

- GE offers complete solar packages for residential systems, remote home and village systems, commercial systems and remote off-grid industrial systems.
- GE 's complete solar electric systems include solar modules ranging in size from 30 watts to 165 watts; quick connect wiring, power electronics, an inverter, and power meters and monitors. The modules have a 25-year warranty and feature heavy duty anodized frames and weather-resistant junction boxes for easy and safe field interconnection.
- In December 2005 GE released its highest power and highest efficiency solar module to date. The new 200-watt solar module offers higher output per square foot, which will allow GE to increase the amount of power generation per square foot of roofing space by 20 percent. This will result in savings for customers on both material and labor costs while reducing the amount of roof space needed for power generation.

Wind Energy

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric

- GE is one of the world's leading wind turbine suppliers, with over 7,000 worldwide wind turbine installations comprising more than 5,600 MW of capacity. GE currently designs and produces wind turbines with advanced wind turbine blades ranging from 1.5 to 3.6 megawatts.
- GE Energy delivered 1,346 wind turbines worldwide during 2005 - more than a 200 percent increase over 2004's total

Natural Gas With Better Efficiency

- Gas plants today in the U.S. provide 20 percent of the US's energy. Gas turbines have 68 percent less carbon emissions than supercritical coal. The current operating fleet has an average efficiency of ~ 53 percent. GE's 7F and H turbine technologies have a 55 percent and 60 percent combined cycle efficiency. The 7F has more than a decade of experience in high efficiency gas turbine technology. Accelerating the upgrade of existing turbines with new more efficient gas turbines will save energy and reduce emissions.
- GE's LMS100® simple-cycle gas turbine offers 100 megawatts at 46 percent thermal efficiency with a wide range of operating flexibility for peaking, mid-range and base-load operation. Based on an average peaking season of 2,184 hours, the LMS100 reduces CO₂ emissions by more than 30,000 tons when compared to a typical simple-cycle 100-megawatt gas turbine plant. That is equivalent to the CO₂ emissions created by more than 5,000 passenger cars in the United States each year. This same CO₂ reduction is equal to the amount of carbon dioxide absorbed by approximately 7,400 acres of forest.

Combined Heat and Power (Jenbacher Gas Engines)

- GE is one of the world's leading manufacturers of cogeneration units for power generation. GE's Jenbacher gas engines are known for their high efficiency, low operating cost and exceptionally high reliability. The engines combine a high output density with low exhaust emissions and low-cost construction. Recently, Jenbacher units have been used to:
 - Power a new 10.6-megawatt power plant in Queensland, Australia that will use waste coal mine gas pumped from an active coal mine. Combustion of waste coal mine gas in Jenbacher gas engines allows the coal mine owners to mitigate the amount of the greenhouse gas that would otherwise be vented into the atmosphere.
 - Provide power for the 2006 Winter Olympic Games in Torino, Italy. GE Energy's Jenbacher gas engine business provided five cogeneration units for three new power plants to support the city of Torino, Italy for the recent Olympic Winter Games.

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric

- Power a landfill methane gas-to-energy plant at the Basse di Stura landfill in Italy -- one of Italy's largest landfill energy projects. In 2004, GE provided six Jenbacher engines to combust methane from the landfill. By burning methane, Italy is encouraging the development of landfill energy plants to help reduce the country's greenhouse gas emissions.

Coal-Based Electric Generation

- In the United States, fifty percent of existing electrical generation is coal-based. The average efficiency of the US coal fleet is 30 percent. Newer coal technologies like IGCC can achieve efficiencies of 39 percent, which will reduce CO₂ emissions by between 23 and 35 percent compared to existing units without sequestration. Given that 50 percent of US generation is coal-based, this would yield significant reductions.
- In addition to the importance of upgrading the efficiency of the existing fleet of coal-fired generation, the U.S. and the rest of the world are also at a significant crossroad with regard to new coal-fired generation. According to data compiled in 2004 (by Platts, the Energy Publishing Division of McGraw-Hill), China could add 562 coal-fired plants, India 213 plants, and the U.S. 72 plants within the next eight years. More recent figures in the U.S. suggest that over 118 permits for new coal-fired generation are now being considered -- with more proposals in the last 12 months than the previous 12 years. Given the 50-year expected lifetime of these plants, it is important that a significant fraction of these new coal generation plants be carbon capture ready, with technologies such as IGCC.
- Unless steps are taken quickly, most new coal plants built in the U.S. and abroad will be supercritical pulverized coal plants. While these plants are more efficient than much of the current US installed base, they do not have the capacity to capture carbon. Unless action is taken now, a significant opportunity will be lost.

Nuclear Generation:

- GE offers the proven Advanced Boiling Water Reactor (ABWR) design nuclear power plant. The ABWR nuclear plant is an economically competitive option for utilities that need additional base-load power generation capacity. The ABWR provides low cost, emission-free electricity. It can be built in only four years for a cost ranging from \$1,400 to \$1,600 USD per kW, depending on the host country. The ABWR has been licensed in three countries, including the United States, Japan and Taiwan
- GE has also developed the Economic Simplified Boiling Water Reactor (ESBWR) with advanced passive safety systems from our ABWR design. The ESBWR is a 4500 MWt reactor that uses natural circulation for normal operation and has passive safety features. GE submitted an application for final design approval and standard

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric
design certification for the ESBWR on in August 2005. Design approval is expected by 2007.

- The Super-PRISM is a GE advanced reactor design for compact modular pool-type reactors with passive cooling and decay heat removal. Modules are 1000 MWt, fission products are removed in reprocessing, and resultant wastes are shorter-lived than usual. The commercial plant concept uses six reactor modules to provide 2280 MWe. This design meets Generation IV criteria including generation cost of less than 3 cents/kWh.

Deleted:

GE Transportation: GE's transportation businesses are committed to developing the most fuel-efficient products to power the air and rail transport sectors.

Air Transport

- GE continues to pioneer the world of flight by looking for ways to make it more energy efficient and quieter. GE's latest engine, the GENx, will use advanced compression and combustion technology to achieve dramatic gains in fuel efficiency and performance with lower emissions than existing engines in its thrust class. The GENx aircraft engines sold in the next 20 years will emit an estimated 77 million fewer tons of greenhouse gases than would have been produced by older GE CF6 engines.

Rail Transport

- The new GEVO 12-cylinder diesel engine in the EVOLUTION Series locomotive produces the same 4,400 horsepower as its 16-cylinder predecessor, and it does so using less fuel.
- Compared to GE's locomotives built in 2004, a single EVOLUTION Series locomotive will consume 189,000 fewer gallons of fuel in its lifetime - enough to power another EVOLUTION Series locomotive for seven months.

GE Consumer and Industrial

ENERGY STAR Appliances and Lighting Products

- GE is a leading producer of ENERGY STAR home appliances and lighting products. The US Department of Energy and US Environmental Protection Agency recognized GE as an "ENERGY STAR Partner of the Year" for each of the past three e years, and in 2006 awarded GE the "Sustained Excellence Award." Between 2002 and 2005, GE invested over \$350 million to develop and market high-efficiency appliance products, and now offers as ENERGY STAR qualified 140 models of dishwashers, 201 models of refrigerators, 24 models of clothes washers, 58 consumer lighting products and 39 commercial lighting products. Of the screw-in compact fluorescent

Additional Topics

Submitter's Name/Affiliation: Stephen Ramsey/David Slump for General Electric

lamps GE sold in 2005, 99% were ENERGY STAR qualified, which means that they use up to 75% less energy than standard incandescent bulbs.

Motors

- GE offers two lines of premium efficiency motors called the XSD Ultra® and the Ultra 841™ motor. GE offers the XSD Ultra® and Ultra 841™ motor in more than 380 catalogue configurations. These motors meet or exceed NEMA Premium Nominal efficiency standards and exceed all NEMA Premium Minimum Guaranteed efficiencies. Replacing one 100 HP 1800 RPM motor sold before 1997 when the US first imposed motor efficiency standards (of which there are hundreds of thousands in service today) with a GE XSD Ultra® or Ultra 841™ motor would annually save enough energy to power two US households for over 15 months.

3. The Need for an Independent Evaluation. We recommend that the Committee consider an independent evaluation of the benefit of implementing a comprehensive program of GHG reductions on the one hand versus the impact on our economy of implementing such a program on the other hand. The evaluation should be completed as soon as possible. The evaluation should:

- Consider whether the amount of GHG reductions that can be expected to result in the US as a result of the operation of the status quo of federal and state laws, regulations and voluntary programs will result in stabilizing or reducing the GHG emissions in the US to an acceptable level;
- Consider the likelihood and length of time it will take for a purely voluntary program (and the types of voluntary mechanisms) for GHG reductions that will result in significant reductions and stabilize GHG emissions at an acceptable level;
- Bench mark the existence and effectiveness of voluntary programs in the US and elsewhere in the world to produce appropriate reductions of GHG;
- Identify and evaluate the cost-benefit of mandatory controls, laws and regulations that could be used to stabilize the emissions of GHG to acceptable levels and the likely time frame and economic impact to do so.
- Identify the technologies that exist to address GHG emissions; the need for government incentives for full development of these technologies; and a likely time frame and cost for their implementation.
- Evaluate the level of acceptance by the industry sectors that will feel the greatest economic impact of a mandatory program of controls on GHG emissions, and actions that could ameliorate the impacts on those sectors.

PNM

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources
Contact: Jeanette Pablo
Email:jeanette.pablo@pnmresources.com
Phone: 202-742-4448

Executive Summary

1. *Point of Regulation*

- Given the magnitude of the issue of climate change, PNM Resources (PNM) believes that, in order to be comprehensive and effective, a greenhouse gas (GHG) regulatory program should cover all sectors of the economy.
- On point of regulation of fossil fuels, it is our view that a GHG program should take a hybrid approach: an “upstream” regulatory approach for fuels with millions of users - petroleum and natural gas, and a “downstream” approach for coal which has fewer users. Regarding the upstream point of regulation for natural gas and petroleum, PNM does not have a specific recommendation but urges the Committee to take into consideration administrative simplicity and economic efficiency. For coal, we recommend downstream regulation for coal users with an exception for *de minimis* users.

2. *Allocation*

- In PNM's view, the great majority of allowances (e.g., 95%) should be allocated without cost in order to transitionally manage the costs associated with regulation. The remaining 5% could be auctioned with the revenues funding important climate change policy objectives through a dedicated Technology Fund to promote new emission-free technologies, and, to a lesser extent, measures for mitigation and adaptation such as low-income residential consumers and vulnerable segments of the manufacturing sector.
- PNM also believes it is important to provide credits for early reduction and offsets, so long as they meet standards for environmental integrity.

3. *International Trading*

- PNM believes there could be significant economic value and substantial potential emission reductions in allowing U.S. companies to invest outside the U.S. to achieve verifiable offsets. We would also support participating in international trading to the extent reasonably feasible.

4. *Comparable International Action Requirement*

- PNM Resources believes it is appropriate for the U.S. to take the lead in addressing climate change; however, the nature, scope, and economic impact of climate change requires the U.S. to pursue mechanisms, such as the Asia-Pacific Partnership, to bring in other major nations.

5. *Safety Valve*

- We urge the Committee to include a safety valve in any mandatory program in order to provide greater compliance cost certainty and mitigate the distorting effects allowance market price spikes would have in encouraging substantial and undesirable investments in natural gas generation, particularly at the early stages of the program.

Question 1. Point of Regulation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Who is regulated and where?

* * *

Given the magnitude of the issue of climate change, PNM believes that, in order to be comprehensive and effective, a GHG regulatory program should cover all sectors of the economy and all sources of GHG emissions. Limiting coverage of the program to certain sectors would result in higher overall compliance costs because it would fail to reach low-cost GHG reduction options available in unregulated sectors. A sector-specific approach would not be as effective in reducing overall U.S. emissions and would unfairly place the burden of achieving reductions on some sectors while allowing others to go unregulated. To illustrate this point: according to the Environmental Protection Agency, electricity generation was responsible for 40% of carbon dioxide (CO₂) emissions from fossil fuel combustion in 2004, while transportation activities accounted for 33% of CO₂ emissions from fossil fuel combustion that same year with over 60% resulting from gasoline consumption, mostly for personal use.¹

With respect to the point of regulation of fossil fuels, it is our view that a GHG program should take a hybrid approach: an “upstream” regulatory approach for petroleum and natural gas and a “downstream” approach for coal. Regarding the upstream point of regulation for natural gas and petroleum, PNM does not have a specific recommendation, but urges the Committee to take into consideration administrative simplicity and economic efficiency. For coal, we recommend downstream regulation for coal users with an exception for *de minimis* uses.

There are several advantages of structuring a hybrid regulatory program that utilizes both upstream and downstream regulation. Upstream regulation of petroleum and natural gas would ensure broad coverage of sources of emissions while reducing the number of entities that must be regulated. Regulating coal-related emissions through a downstream approach would build upon successful elements and utility experience operating under the cap and trade system already in place under the successful U.S. acid rain program.

PNM's views on the scope of a federal regulatory program and the proper point of regulation in the production chain are discussed further in our response to clarifying questions 1a and 1b, respectively. However, we also believe it is important to point out that a number of states and local governments are already engaged in the development of regulatory programs to reduce GHG emissions, including cap and trade programs. It is critical that utilities and other regulated entities not be subject to duplicative and/or conflicting regulatory requirements of multiple governmental jurisdictions. A single national GHG emissions regulatory program, with federal oversight, is the most effective approach to ensuring an administratively simple and economically efficient GHG emissions program.

¹ Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004, Environmental Protection Agency, 2005), p. ES-8.

Question 1. Point of Regulation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

* * *

PNM strongly supports an economy-wide approach to regulating GHGs. PNM believes that in order to be economically efficient and effective at reducing GHG emissions the most equitable approach for regulating GHG emissions is to include all sectors of the economy and cover all sources of GHG emissions either directly or indirectly. Limiting the program to particular sectors or to particular types of sources would result in higher overall compliance costs because it would fail to reach low-cost GHG reduction options available in unregulated sectors. The full benefits of an emissions trading program, which allows regulated entities to capture the most inexpensive reductions wherever they are, would be lost under an approach limited to certain sectors.

A sector-specific approach would also not be as effective in reducing the nation's overall GHG emissions as an economy-wide program. As the Committee itself points out, no single sector of the U.S. economy makes an overwhelming contribution to overall U.S. GHG emissions. Consequently, a program limited to certain sectors of the economy would only be taking partial steps toward reducing the nation's overall GHG emissions. Such an approach would also be unfair because it would place the burden of achieving reductions on selected sectors, while allowing others to go unregulated. Under a sector-specific program, regulated sectors of the economy could also have incentives for shifting emissions to non-regulated sectors – in other words, the risk of “leakage” would be higher. Furthermore, leaving certain sectors or types of emissions sources unregulated now would allow those entities to lock in more carbon-intensive technologies or practices, making it more costly to require reductions from those entities later.

Since every sector of the economy is a contributor to the nation's GHG emissions, a national program should be economy-wide in scope. The scope and nature of GHG emissions demands a comprehensive solution to reducing emissions that only an economy-wide approach can achieve.

Question 1. Point of Regulation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

* * *

It is PNM's view that a GHG program should take a hybrid approach to regulation of CO₂ emissions from the use of fossil fuels: an "upstream" regulatory approach for petroleum and natural gas and a "downstream" approach for coal. Regarding the upstream point of regulation for natural gas and petroleum, PNM does not have a specific recommendation, but urges the Committee to take into consideration administrative simplicity and economic efficiency. Coal users would be regulated downstream at the point of emission with an exception for *de minimis* users. PNM would recommend that petroleum coke be regulated downstream in the same manner as coal in a hybrid program.

There are several advantages to structuring a regulatory program for fossil fuels in a manner that utilizes a hybrid approach for CO₂ emissions. Placing the point of regulation for petroleum and gas upstream ensures broad coverage of sources of emissions, while reducing the number of entities that must be regulated. Similarly, regulating coal-related emissions downstream at the utility level instead of upstream results in coverage of a significant portion of emissions while keeping the number of regulated entities down to a manageable level. Moreover, the electric utility industry has implemented and established administrative processes for accounting and trading of emissions allowances under the Clean Air Act title IV's successful acid rain cap and trade program. This experience could help provide a basis for developing a much more comprehensive GHG program.

However it is also important to point out that it would be a mistake to expect the experience from the acid rain program could provide anything more than general direction for development of a GHG cap and trade program. A GHG emission trading system is likely to be far more costly, complicated and difficult to administer than the acid rain cap and trade program.

The vast majority of coal-fired generation units across the U.S., over 75%, operate under cost of service regulation. A downstream approach to regulating coal-related emissions requires attention to the treatment by utility regulators of allowance costs associated with coal use by utilities. Under a hybrid approach, utilities would incur allowance costs directly when they consume coal; when they consume petroleum and natural gas they would incur higher fuel prices (because those fuels would be regulated upstream). Although regulated utilities are permitted by regulators in many states to recover the higher fuel costs in their rates via a fuel adjustment clause, it must be made clear that utilities can pass through allowance costs associated with coal-related emissions. Regulated utilities in states like New Mexico, that are not allowed to recover higher fuel costs through a fuel costs adjustment mechanism, and are subject to additional uncertainty and risk of having cost recovery for higher fuel costs disallowed. If a hybrid regulatory approach is adopted, then the Committee should address how federal and state electric

Question 1. Point of Regulation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

utility regulators are to develop regulatory approaches that would ensure cost of service utilities have reasonable assurance of cost recovery for prudently incurred costs for higher fuel and/or allowances associated with a GHG regulatory program.

With respect to transportation sector emissions, alternatives such as fuel economy standards or CO₂ emissions standards for new automobiles could also be considered in addition to regulating the carbon content of transportation fuels.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

* * *

PNM strongly supports an allocation of allowances over an auction approach and believes the great majority of allowances (e.g., 95%) should be allocated to the electric power sector at no cost. This is necessary in order to transitionally manage the economic impacts and costs that coal-based utilities and their customers will face complying to mandatory GHG regulations.

Under mandatory climate change regulation it is important that adequate allowances be given to mitigate compliance costs. States and utilities that rely on fossil-fired generation for the majority of their electricity will bear a disproportionate share of the compliance cost burden compared to the utility industry and U.S. as a whole. This is why the issue of allowances versus auctioning of allowances is so important to fossil-based utilities like PNM.

Based on our forecasts of electricity generation in 2010, and simplifying assumptions about the range of costs of allowances under a NCEP-type cap and trade program, our analysis indicates that purchasing 100% of the allowances needed to comply with the an emissions cap through an auction would cost PNM approximately 20 times the amount we would ootherwise would incur if 95% of the allowances were allocated at no cost to the company.

The difference in the magnitude of compliance cost between an auction and no-cost allocation approach is striking. PNM's analysis clearly shows that an auction would dramatically increase compliance costs to the utility and that allocating 95% of allowances would substantially reduce compliance costs and, thereby, mitigate increases in electricity prices to New Mexico consumers.

Under the proposal discussed above, PNM would recommend the remaining 5% of allowances that were not allocated could be auctioned and the revenues used to fund important public policy objectives through a non-profit Technology Investment Fund. The Technology Investment Fund could be headed by a public-private panel tasked to direct how the funds would be allocated.

PNM supports providing the Technology Investment Fund with a dedicated funding source primarily to promote R&D as part of any regulatory program. A small portion of the Technology Investment Fund could also be dedicated to funding measures for mitigation and adaptation. Two categories of energy consumers that may be considered by the Committee as potentially eligible for mitigation and adaptation are low-income residential consumers and vulnerable segments of the manufacturing sector.

PNM believes it is also important to provide credits towards allowances to entities that undertake early GHG emissions reduction and emissions offset projects, so long as they are measurable, quantifiable and can be verified. Moreover, if early reduction projects and offset

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

projects meet such standards, the allowance credits for these activities should be *in addition* to the allowance pool because by definition these activities will not be covered by the cap-and-trade program.

It is possible that firms may incur costs (or lose revenues) from a regulatory program either because they are themselves regulated or because their suppliers or customers are subject to regulation. For instance, even if the program were to regulate generators' coal-related emissions on a downstream basis, coal producers may incur unrecoverable losses of revenues because allowance costs associated with coal combustion may reduce their utility customers' demand for coal. To the extent this occurs, it may be appropriate to allocate some portion of allowances to address these and similar economic impacts.

Comment [j1]: JES edit

Allowances for new units could be allocated in such a way as to provide incentives for low-emitting generation. In addition to electricity generators, other large users of coal could be regulated under our proposal and presumably would receive allowance allocations under a formula similar to electric utilities. Finally, it may be appropriate to consider phasing out allowance allocations over an extended period of time, such as 40-50 years, once the economy has adapted to the mandatory system.

PNM's views on the allocation of allowances and related considerations are discussed in greater detail in our responses to clarifying questions 2a through 2g.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2a:

Technology R&D and Incentives

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?
- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

* * *

Two kinds of technology classes are critical to addressing the challenge of climate change: (1) existing emission free or low emission technology that is not yet cost competitive with conventional generation technologies, and (2) future “breakthrough” technologies that can achieve the levels of reductions needed to stabilize and then reduce atmospheric concentrations of GHGs in the mid to latter part of the century.

We have followed with interest Anne Smith’s research. At the National Commission on Energy Policy workshops on climate change, she noted that only existing technologies would be advanced to commercialization by current cap-and-trade proposals. With respect to new technologies, like others, we have been persuaded by her argument that “the standard market-based environmental policy tools of cap-and-trade and emissions taxes cannot provide credible incentives for the technological change needed to stabilizing atmospheric concentrations of greenhouse gases at any level.”¹ We are also impressed by the significant level of R&D funding that organizations like the Electric Power Research Institute believe will be necessary to develop the next generation of non-carbon and low-carbon energy technologies that will be needed to stabilize and then reduce concentrations of carbon dioxide in the atmosphere.

¹ *Price, Quantity, and Technology Strategies for Climate Change Policy*, by W. David Montgomery and Anne E. Smith, CRA International (October 11, 2005), p. 1.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

In PNM's view, any GHG program must consist of two components: the first to slow emissions growth and advance commercially available zero-carbon and low-carbon energy technologies and the second to create new zero-carbon emitting technologies needed to achieve meaningful emissions reductions. We believe that a cap-and-trade approach with a safety valve may be the most appropriate approach for the first component and the creation of a Technology Investment Fund may be the most appropriate approach for the second component.

PNM supports the creation of a Technology Investment Fund to provide a dedicated funding source for technology deployment and R&D investments as part of a mandatory program. There are a number of sources for generating the funds, including proceeds from auctions of the unallocated 5% of allowances, revenues generated by a safety valve mechanism, a per ton surcharge on CO₂ emissions or on the carbon content of fuels, or other mechanisms. Whichever mechanism or combination of mechanisms is chosen, it is important that the funding is stable and predictable. For this reason, it may not be appropriate to rely solely on safety valve revenues as a source of funding because such revenues likely would be highly variable. Indeed, in some years of the program the price of allowances might be at or below the safety valve price, in which case there would be no safety valve-related revenues. To ensure a steady stream of reliable funding for the Technology Investment Fund, we must also avoid the uncertainties of the annual appropriations process.

A number of alternative options are available for administering the Technology Investment Fund. However we strongly recommend that the Technology Investment Fund should be administered by an independent panel comprised of representatives balanced between the private sector and those involved in the public sector (government, private sector, NGOs, educational and institutional sectors). The panel could be directed to disburse the proceeds in a number of key areas. For instance, it would make sense to target a sizeable portion of the Technology Investment Fund for the development of new applications to reduce GHG emissions through means such as energy efficiency and new technology or product development. Another portion could fund development and deployment of technologies that reduce, capture, and/or sequester GHGs.

PNM recognizes the difficulty of developing a mandatory U.S. cap-and-trade program. It is also true that we believe a well-funded R&D program targeted to accelerate the development of zero-carbon energy technologies should be our nation's number one climate policy priority. To that end, if the implementation of a mandatory program is delayed for several years, PNM could support imposition of a fossil generation surcharge and the creation of the Technology Investment Fund immediately. For example, a \$1 surcharge on MWh would generate approximately \$2.8 billion annually. A two-cent per gallon on gasoline would generate \$2 billion annually. The surcharge should be phased out as the revenues increased from auctioning the 5% allowances once the cap-and-trade program were in place.

Comment [j2]: JES edit

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2b:

Adaptation Assistance

- What portion of the overall allowance pool should be dedicated to adaptation research or adaptation-related activities?
- How should these allowances or funds be administered?
- What is the appropriate division between federal vs. regional, state, and local initiatives?

* * *

In PNM's view, measures for mitigation and adaptation could fall under the scope of the Technology Investment Fund as discussed on page 3 of this question.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2c:

Consumer Protections

- What portion of the overall allocation pool should be reserved to assist consumers?
- Should funds from the sale of permits or allowances be targeted primarily to low-income consumers, or should they be more widely distributed to benefit all consumers?

* * *

One of the purposes of the allocation of allowances is to offset undue burdens to the ultimate consumer and, possibly, to promote deployment of existing but higher cost zero carbon and low-carbon emitting technologies; however, under any allocation system certain categories of consumer may need additional, short term assistance, such as low income consumers and certain segments of the manufacturing sector.

Funds from sale of the 5% of allowances could also be used to remove barriers to deployment of renewable technologies by significantly reducing the costs for energy consumer technology (such as residential solar panels). PNM would support consideration of using allowances or allowance sales to for these purposes and would be happy to work with the Committee to develop appropriate treatment of these concerns.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2d:

Set-Aside Programs

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

* * *

Allowance credits for early reduction and offset projects are critical to keeping compliance costs manageable and at an acceptable level. PNM believes it is important to provide credits for early reduction and offsets, so long as they are measurable, quantifiable and can be verified. Moreover, if early reductions and offset projects meet such standards, the credits for these activities should be *in addition to* the allowance pool and should be issued without limits.

PNM also supports setting aside a small number of allowances for certain types of new electric generation as discussed below in response to question 2f.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2e:

Special considerations for fossil-fuel producers?

- Would some upstream fossil fuel producers be unable to pass the cost of purchasing permits or allowances through in fuel prices if they are the regulated entity?
- Is there a sufficient policy rationale for addressing these costs to justify the complexity of setting up and administering an allocation system for these entities?
- What other options exist to address the inability of fossil fuel producers to pass through these costs?

* * *

Coal producers (and perhaps other producers of fossil fuels) may argue that they will incur a loss in revenues from a mandatory GHG emissions regulatory program and will not be able to recover these lost revenues from customers. To the extent that such a showing is made, it may be appropriate to allocate some portion of allowances to address these and similar economic impacts in the early years of the program and until energy markets have adequate time to adjust.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

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Clarifying Questions 2f:

Allocations for downstream electric generators?

- Should electricity generators be included in the allocation if they are not regulated?
(Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

* * *

As stated in our response to clarifying question 1b, PNM suggests the Committee consider a hybrid program that would entail downstream regulation of coal-related emissions from electric power generation. But, whether or not such a hybrid program is adopted, allocating allowances to electric generators should be considered. The Committee notes that electricity generators will face higher costs under a GHG regulatory program as fossil fuel prices rise. If a full upstream program is adopted, generators will not bear allowance costs directly, rather those costs will be built into the price of the fuel they purchase. Fossil-fired generators in competitive markets may not be able to recover these higher fuel costs because they may not be able to pass these costs through to wholesale or retail customers. For fossil generators in regulated markets, cost recovery depends on State and Federal regulatory policies. If electric generators receive allowances, they could use the revenue generated from the sale of those allowances to offset higher fuel costs that cannot be passed through to customers and to mitigate price impacts on consumers to the extent the costs would otherwise be passed through.

Similarly, even if natural gas-related emissions were regulated on an upstream basis, electricity generators may need to receive allocations to mitigate unrecoverable costs resulting from higher prices for natural gas.

Allowances awarded to existing electric generator units should be based on historical emissions, similar to the U.S. acid rain program. Under either a hybrid or upstream program, allocations should be available only for fossil-fired generation because it will incur all the

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

electricity sector's compliance costs and non-carbon emitting generation will benefit from higher electricity prices.

PNM would also advocate that a portion of allowances provided to generators under a hybrid program should be set-aside for new coal units.

In considering whether to distinguish between utilities subject to cost-of-service regulation and utilities whose rates are set by the market, the Committee should look at what is administratively feasible, and manageable as well as general policy concerns. Whatever policy reasons may exist for distinguishing between generators subject to cost-of-service regulation and unregulated generators, it is by no means clear whether a program that tries to make such a distinction could be administered. First, for many utilities, including PNM, the same fleet of generating units serves both regulated and unregulated markets. Second, it is not clear exactly what constitutes cost-of-service regulation, particularly in the context of generators owned by utilities subject to long-term retail rate freezes. Third, utilities may change from cost-of-service to deregulated status and vice-versa, as state regulatory policies change or FERC allows or disallows market-based rates. Finally, ownership of generation units may change over time, as generation units are transferred between regulated utilities and unregulated power producers. For this reason, it may be infeasible to implement allowance allocation policies that distinguish between generators under cost-of-service regulation and those who are in deregulated markets.

Under the hybrid approach, utilities would not receive an allowance allocation for natural gas or oil since those fuels would be regulated upstream. One approach to allocation of allowances among the three fuels (petroleum, natural gas, and coal), which has the advantage of administrative simplicity, would be to allocate allowances among each fuel sector (i.e., to producers and/or users of a particular fuel) based on a pro-rated share of GHG over some reasonable base period. For example, if coal generation were responsible for thirty percent of GHG emissions, coal-burning utilities would receive thirty percent of the allowances.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2g:

Allocations for energy-intensive industries?

- Is there a sufficient policy rationale to have an allocation to selected energy-intensive industries? What industries should be included in the allocation?
- What portion of the overall allocation framework should be reserved for these industries?
- What are the appropriate metrics for determining allocations across different industries?

* * *

Our recommendation to regulate coal-related emissions downstream would mean that any energy-intensive industries that use more than *de minimis* amounts of coal would be regulated and presumably receive allowance allocations under a formula similar to electric utilities.

Question 2. Allocation

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Clarifying Questions 2h:

Allocations to other industries/entities?

- What other industries/entities (e.g. agriculture, small businesses, etc.) should be considered in the allocation pool?
- What should be the basis for their share of the total allocation as well as for the distribution among such industries/entities?

* * *

PNM does not have a specific recommendation on this subject.

Question 3. International Trading

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

* * *

Like many other utilities, PNM is more knowledgeable about U.S. domestic proposals and voluntary programs than international activities. In looking beyond the U.S. for purposes of responding to this question, PNM observes that there may be some benefit to understanding GHG emissions reductions programs currently being pursued in other countries to determine what might work best in the U.S. (and what might not work at all).

With respect to the specific question on whether a U.S. system should be designed to eventually allow for trading with other GHG cap-and-trade systems around the world, PNM believes the priority should be to develop a viable, cost effective domestic program and as a secondary matter to look to the international arena for linkage. We would, however, encourage a provision to allow U.S. companies to invest outside the U.S. to obtain verifiable offsets. The benefits of reducing GHG emissions in the atmosphere will be the same no matter what country the emissions reductions occur. To the extent it is more cost-effective for utilities and other regulated entities to invest in projects that reduce GHG emissions in other countries it should be allowed.

While there could be significant value in pursuing an approach to link whatever system is finally adopted in the U.S. with other GHG cap-and-trade systems, we observe that the Canadian and European Union systems have taken different approaches and there is little opportunity for trading between these systems at least at present.

Question 4. Comparable Action

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program?

* * *

There is a difference between delaying implementation of a U.S. climate change program until developing nations commit to a mandatory reduction program and recognizing the need for international action given the scope and nature of climate change. PNM seeks regulatory certainty but also recognizes the critical importance for all nations to address climate change to achieve the necessary emissions reductions over time without disrupting critical economies.

At PNM, we understand the advantage to moving sooner rather than later on climate change and we seek the regulatory certainty that would be provided by climate change particularly if coupled with multi-pollutant legislation. When PNM builds or acquires new generation capacity we do so with a 30-40 year time horizon in mind. Investment decisions we are making today regarding new generation will reverberate for decades and must fit with what we perceive to be the regulatory climate and compliance costs we believe will be in effect during the life of these assets. Accordingly, moving forward on climate change and multi-pollutant legislation is important to providing the regulatory certainty PNM and other utilities need in order to make the resource acquisitions decisions today that are in the best interest of our customers and shareholders.

We recommend the U.S. take a dual track approach to address climate change in the U.S. through legislation and initiatives such as the very promising Asia Pacific Accord to address climate change within other nations, particularly large emitters.

Additional Topic

Submitter's Name/Affiliation: Jeff Sterba, PNM Resources

If there is an additional topic related to the design of a mandatory market based program that you would like to address, please submit comments on this form.

* * *

Safety Valve

PNM urges the Committee to incorporate a safety valve in any mandatory cap-and-trade climate change program for the following reasons:

- In the near-term, absent a safety valve mechanism, if price spikes in the allowance market were to occur, a key consequence could be to encourage substantial switching to natural gas which is an undesirable outcome.
- Many of the issues surrounding allocations within the utility industry bear a keen relationship to reducing costs. Inclusion of a price cap would lower the stakes in the allocation battle and facilitate resolution of the issue.
- By providing a stable and predictable cost environment, a price cap would allow a more stringent program to be implanted over time.

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Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy
Contact: HQ 13f, 101 Ash St., San Diego, CA 92101
Email: mmurray@sempra.com
Phone: (619) 696-2320

Executive Summary

Sempra Energy appreciates this opportunity to comment on your proposed Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System, dated February 2006. Sempra Energy (NYSE: SRE), based in San Diego, is a Fortune 500 energy services holding company whose subsidiaries provide electricity, natural gas and value-added products and services. The Sempra Energy companies' more than 14,000 employees serve more than 29 million consumers in the United States, Europe, Canada, Mexico, South America and Asia.

Sempra Energy found the Climate Proposal of the National Commission on Energy Policy to be well thought-out and contain a number of ideas worthy of serious consideration. The broadly represented Commission proposal suggests that their ideas could find support from both the business and the environmental community. We believe the questions raised in your Design Elements document are going to be the crux of serious debate at the national level on the regulation of greenhouse gasses (GHG), and we would like to provide our thoughts on these issues.

Sempra Energy believe that a national cap & trade program designed to reduce GHG emissions needs to include a hybrid auction of allowances in a national GHG cap & trade program that allocates some allowances to downstream electric generators. This Cap & Trade program should also allow for banking and the use of offsets to minimize costs. Sempra Energy also believes that a provision for a financial safety valve, as originally proposed as part of the amendment to the Energy Bill, is very important. Lastly, Sempra believes that any national program of this nature must provide for a direct linkage to international cap & trade programs. It is important that the primary goal of such a national GHG program be to encourage the development of innovative new technologies not only for electric generation, but also for GHG sequestration and environmental adaptation.

Sempra Energy is in a position to provide some unique value to your April Climate Conference for a number of reasons. These include our experience in California, which is presently establishing a cap on GHG emissions associated with the electric load served by our utilities, our leadership in national LNG infrastructure, and our international presence in generation, pipelines and LNG. Sempra Energy has been debating this issue with California's environmental policy-makers for a number of years, and has expressed its interest in helping to make the program work, as most recently proposed by the California Public Utilities Commission.

We are also at the cutting edge in pursuing acquisition of renewable energy resources, and understand the need for adequate electric transmission infrastructure to provide access to those resources. We look forward to participating in your Conference.

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Question 1. Point of Regulation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Who is regulated and where?

Climate Change is a complex international issue. It will be addressed at two levels. The first is a regulatory attempt to reduce anthropogenic Greenhouse Gas (GHG) emissions. To be successful, scientists advise that radical reductions will be needed. To achieve that, any successful program will need to be a global effort. Sempra Energy believes that it is vital that all world economies need to participate in that effort. If participation is substantially less than near universal, then the required reductions in global GHG emissions will not be possible and there will be a moderate to serious issues of economic dislocation among trading partners.

To the degree that the United States chooses to take a leadership role and unilaterally pursue GHG emission reductions, it will need to do its best to design a program that is the most economically efficient, and creates positive opportunities and motivation for the much-needed technological innovation. A well-designed program will take advantage of our technological ingenuity and create world markets for these new energy technologies. Alternatively, a poorly designed program will create economic disruption and disadvantage us in the world market. Sempra Energy believes that market-based approaches are the most efficient, and therefore opportunities for reduction are maximized through participation of all sectors of the economy.

The second level at which Climate Change will be addressed will be that of adaptation to the impacts. This process has already begun, and will continue while the global attempt to reduce global GHG emissions evolves. Attempts at adaptation will again create opportunities for technological innovation for which the United States can demonstrate its leadership. Energy costs will rise, creating the widespread demand for energy-efficient technologies. Precipitation patterns may change, creating the need for water efficient technologies or equipment to manage flooding. Current agricultural areas may suffer from climatic changes, creating the increased need for the exportation of both our farming equipment and our crops.

Our leadership in addressing Climate Change need not be only one of fossil fuel belt-tightening, but must also take the form of breakthrough technological innovation.

The first threshold issue is whether to achieve the targets with traditional "command-and-control" regulations (*e.g.*, technology requirements, unit-level emission limits) or market-based approaches. Traditional command-and-control is the easiest to implement, in that requirements are set for regulated sources and then timelines are given to meet the standards. The argument against command-and-control is that it may not be the most cost-effective way to meet a given emissions-reduction target.

Market-based options allow participants to achieve emission reductions through market systems. Emissions of several pollutants have been effectively reduced through market-based "cap-and-trade" programs in recent years, including SO₂ (through the federal Clean Air Act's Title IV Program) and NO_x (through the federal Clean Air Act's "NO_x SIP-Call Program"). The United States Environmental Protection Agency has also recently adopted new cap-and-trade

Question 1. Point of Regulation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

programs for SO₂, NO_x and mercury (through the federal Clean Air Act's Clean Air Interstate and Clean Air Mercury Rules). Sempra Energy supports this approach.

Question 1. Point of Regulation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

Sempra Energy believes that the broader the regulatory program the better. We supported a sector approach in Senator Carper's proposed S 843 Clean Air Planning Act, due to its multipollutant approach. But in the context of a Climate Change bill alone, it would be more efficient and productive to address the entire economy, especially the transportation sector, because in order to maximize the chance for success we need to focus on the major sources of emissions. This is an especially important factor when one also considers the issue of national energy security.

If, as stated before, we want to maximize opportunities for the development of innovative technologies, an entire economy-wide program would do that. By limiting the program to only certain sectors, efficiencies will be lost and the market will be artificially limited.

No single sector makes an overwhelming contribution to U.S. GHG emissions, nor does any one sector have at its disposal a low-cost means to dramatically reduce its GHG emissions. An economy-wide approach that incorporated all sectors would therefore be the most "fair" in terms of allocating the burden of reducing emissions across all economic activities. Such an approach would also likely be the most cost-effective by encouraging the least-valuable GHG emission sources to cut back first.

On the other hand, an economy-wide approach could be difficult and costly to implement and administer, as the numbers of GHG-emitters is vast, and they fall under different regulatory jurisdictions. This is why we believe your upstream approach makes good sense

Question 1. Point of Regulation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

If the goal is to reduce the nation's GHG in the most administratively efficient manner, then an upstream approach is an intriguing option over attempts to regulate individual sources. In addition to the ease of administration/tracking, it creates broad participation opportunities and market levelization. As a major supplier of LNG, Sempra Energy would be one of the upstream points of entry for imported natural gas, and therefore subject to your proposed regulatory system. Our principal concern would be your recognition of the importance of this clean energy source, and the fact that it would not have a historic "throughput", should your allocation system focus upon historic operations. It would be important, therefore to provide for a fair and reasonable allocation that would not discourage the nation's ability to import natural gas supplies to replace those lost to reduced flows from US wells.

About 82% of U.S. GHG emissions come from burning fossil fuels, including the gasoline used in our cars. Direct emitters of GHGs therefore number in the hundreds of millions in the U.S. The large number of direct emitters makes it difficult to design a regulatory program that would cost-effectively include all of them. Regulators instead can target intermediate industries that are strongly correlated to end-user emissions, in effect making those industries the "agents" of their consumers in reducing GHG emissions.

In an *upstream* regulatory approach, the point of regulation is placed closer to energy producers and suppliers than to end-users. Under such an approach, coal-mining companies, petroleum refiners and natural gas shippers or pipelines would be targeted for regulatory intervention. For example, they might be required to pay a CO₂ tax or required to purchase emissions allowances, the costs of which would be passed on to end-users. Benefits of such an approach include simplified program administration and, potentially, complete capture of all emission sources and reduction opportunities.

A *downstream* approach targets the point of the emissions. Due to the large number of emitters, such an approach would likely have to be limited to major sources and specific sectors of the economy, such as electric generators and large industrial users of fossil fuels. One advantage of this type of approach is the cumulative experience industry and regulators have with it, as it has been used in national, regional and local pollutant trading programs.

Another issue is the fact that some uses of natural gas do not create greenhouse gasses, such as its use as a chemical feedstock. One possible solution would be a credit back program tied to the allowance value.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

Sempra Energy believes that a “hybrid” allocation mechanism may be necessary to mitigate some of the impact of this program on key parts of the economy. This hybrid mechanism would provide that some of the allowances would be held back and allocated, while the rest of the allowances would be put up for auction. *Auctioning* is a competitive method of allocation that uses price as a basis for allocating credits. The initial primary market created by a competitive allocation provides a clear signal about participants’ valuation of credits, which improves bidders’ own valuation estimates from the outset. Clear market prices provide emitters with a clear value against which to assess their abatement opportunities.

Auctions treat all sectors of the economy equally, regardless of their past emission performance. Under auctions participants are expected to implement the “least-cost” emissions reductions measures. Therefore, an auction would be the most economically efficient way of distributing GHG allocations. It would minimize the possibility of creating “winners and losers” and possible economic disruption. We would support the proceeds from the auction to be used to create incentives for the development of innovative, low GHG generation technologies.

However, as you have indicated, there will be industries that may suffer disproportionately due to increased fuel costs. Electric generators are in that category. Allocating some allowances to them would allow a buffering of those increased costs and increase compliance options. Holding a reserve for new entrants would also be important. Therefore we would recommend that an auction be augmented, in a hybrid approach, with at least initial allowance allocations to electric generators

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2a:

Technology R&D and Incentives

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?
- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

Because of the radical changes that must be made in the nation's use of fossil fuels in order to have any significant impact on its GHG footprint, there needs to be a significant investment made in the research and development of new technology. America has excelled when its resources are focused on a competitive marketplace, with rules established that provide a certainty for investors. The more that the actual marketplace can be used to pick the winners and losers, the more economically efficient the process will be. Therefore, Sempra Energy would support the use of market incentives, tax structure and clear goals, rather than an attempt at academics picking the winners. One incentive that should be considered is some break in certifying allowances for cutting edge technologies, to reduce the risk for technology development and an opportunity to create value.

As stated previously, global climate change will continue to occur for many years, and technology development opportunities will exist not only for energy, but also for adaptation. It will therefore be important that our tax structure creates an environment of reduced financial risk for greenhouse gas reduction technology development, where businesses can subsequently benefit from the international deployment of that technology.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2b:

Adaptation Assistance

- What portion of the overall allowance pool should be dedicated to adaptation research or adaptation-related activities?
- How should these allowances or funds be administered?
- What is the appropriate division between federal vs. regional, state, and local initiatives?

The climate changes (not just global warming) are likely to vary by region and will continue to be very difficult to model and predict. Unless a national GHG regulatory program is sufficiently funded to provide for the development of new electric generation and transportation technology, there will not be sufficient funding also available to make any difference in attempts at adaptation. And until we better know what changes to climate are going to be, we may waste these scarce resources. It would be better to use the current federal support for public works projects to address adaptation, as one of its considerations.

We therefore believe that adaptation assistance should take the form of incentives for technology development that would be available for inevitable international climate change adaptation. Rather than provide allowance funds for direct adaptation projects, we should provide the technology needed.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2c:

Consumer Protections

- What portion of the overall allocation pool should be reserved to assist consumers?
- Should funds from the sale of permits or allowances be targeted primarily to low-income consumers, or should they be more widely distributed to benefit all consumers?

This is a difficult issue to address, because one of the things that we really need to have develop is a consumer awareness of the real cost of fossil fuel use and GHG reduction. The more that consumers are insulated from these costs, the less likely they will make the life-style changes needed to affect their use of energy. Otherwise, we agree that the LIHEAP program (after the allocation issue that is biased toward cold-weather energy uses and not towards hot-weather energy uses / NE and Midwest against the South and Southwest) is the correct federal role. Assistance for low-income customers buying energy efficient appliances and the like are best handled (and currently handled) at the state level.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2d:

Set-Aside Programs

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

Sempra Energy supported the concept of a set aside of allowances under Senator Carper's Clean Air Planning Act to avoid the undesirable requirement that a new, clean, efficient source of energy would have to purchase allowances from an existing competitor. Set-aside programs should be designed to ensure that new entrants are allowed to compete, thus protecting consumers.

Although credit for early reductions is something that Sempra supports, one must recognize that nationally there is already a very uneven playing field. California has some of the most energy efficient systems in place, but they have not lent themselves to a form reportable through the DOE's 1605b program. The point here is that the rules for early action credit need to be broad enough to capture the gains that may differ in form, one region to another, and that early actors are not disadvantaged in a cap & trade program as a result of too narrow a definition of early action.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Semptra Energy

Clarifying Questions 2e:

Special considerations for fossil-fuel producers?

- Would some upstream fossil fuel producers be unable to pass the cost of purchasing permits or allowances through in fuel prices if they are the regulated entity?
- Is there a sufficient policy rationale for addressing these costs to justify the complexity of setting up and administering an allocation system for these entities?
- What other options exist to address the inability of fossil fuel producers to pass through these costs?

At issue is whether upstream fossil fuel producers may have sales contracts that would prohibit them from passing along the new costs. Where this situation exists, we would support a mechanism to allocate allowances such that producers would not be competitively advantaged or disadvantaged.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2f:

Allocations for downstream electric generators?

- Should electricity generators be included in the allocation if they are not regulated? (Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

As stated above, a hybrid auction, with allocations to significant downstream users of fossil energy, would provide for the flexibility and buffering to improve the success of the program.

Sempra Energy believes that allocations for downstream generators should be output-based, and should not differentiate between whether the generator is owned by a state PUC regulated utility or a merchant generator. Out-put based allocation is not consistent with a desire to "buffer" the impacts of this new program.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Questions 2g:

Allocations for energy-intensive industries?

- Is there a sufficient policy rationale to have an allocation to selected energy-intensive industries? What industries should be included in the allocation?
- What portion of the overall allocation framework should be reserved for these industries?
- What are the appropriate metrics for determining allocations across different industries?

As stated above, Sempra Energy believes that the simpler the program, the better. One could make an argument that many businesses are energy-sensitive. In California, during the “energy crisis” of the year 2000-2001, many smaller businesses were significantly affected by the increased energy costs. But where they could, their conservation made a big difference and demand for energy conservation technologies significantly increased. This climate change program needs all sectors to understand the need for energy efficiency to properly incent the technology development that will be necessary.

Question 2. Allocation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Clarifying Questions 2h:

Allocations to other industries/entities?

- What other industries/entities (e.g. agriculture, small businesses, etc.) should be considered in the allocation pool?
- What should be the basis for their share of the total allocation as well as for the distribution among such industries/entities?

Please see our response to question 2g.

Question 3. International Linkage

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

Ultimately the most economically efficient GHG reductions are going to need to be adopted worldwide. But it may not be necessary to “design” a US system if there are already systems in place that are performing effectively. If a US system is designed it is strongly recommended that differences between allowance trading markets be transparent as this would help ensure as level a regulatory playing field as possible. An integrated marketplace should be similar to any commodities market, fully integrated with standardized verification systems. It is critical that a US GHG program be designed to allow (not just eventually) but immediate trading.

Question 3. International Linkage

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Clarifying Question 3a:

- Do the potential benefits of leaving the door open to linkage outweigh the potential difficulties?

As we stated at the beginning, if we are to effectively address Climate Change, it must eventually include all world economies. The door must remain open for linkage to other international programs.

Question 3. International Linkage

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Clarifying Question 3b:

- If linkage is desirable, what would be the process for deciding whether and how to link to systems in other countries?

The answer is a simple one. If linkage would increase the economic efficiency and ultimate effectiveness of global climate change regulation, then the link needs to be not only allowed, but also incentivized.

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Question 3. International Linkage

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Clarifying Question 3c:

- What sort of institutions or coordination would be required between linked systems?

Most nations have commodities institutions but many lack comprehensive regulatory structures for regulating GHG emissions. Nevertheless it is possible to develop incentive mechanisms which encourage compliance by choice through energy efficiency and low cost technologically advanced options. International commodity trading mechanisms can stimulate the process but will require verifiable inventories, simplistic monitoring methods and transparent accounting. Absent those, no market-based system would work, and the incentives for technology development would be corrupted.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?

Sempra Energy supports the recommendation of the National Commission on Energy Policy that calls for stepwise actions. As we stated earlier, Climate Change is an international issue. Unilateral action by the United States may be viewed as an appropriate first step, but in order for the ultimate solution of technology development to make a real difference, the incentives to use these new technologies need to be worldwide. The step approach recommended by the NCEP makes sense.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Semptra Energy

Clarifying Question 4a:

What metrics are most valuable for comparison of developed and developing country mitigation efforts to U.S. efforts?

Verification and tracking GHG emissions is a critical element within the process. Because quantification of raw materials is a basic metric used by organizations to assess economic status emission metrics would be most easily verifiable if based on raw material input and standardized emission factors. Although limiting annual tons of CO₂ equivalent is a critical performance measure it is equally important to measure compliance effectiveness of developing nations' progress with a metric that compares emissions to efficient conversion of raw materials (efficiency).

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy,
Sempra Energy

Clarifying Question 4b:

What process should be used to evaluate the efforts of other nations and how frequently should such an evaluation take place?

Sempra Energy feels that market-based mechanisms allow for most effective and efficient ways to manage emissions. Likewise market-based mechanisms encourage verification protocols which are simplistic and portable. If evaluated on an annual basis it is easier to make policy adjustments.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

Clarifying Question 4c:

- Are there additional incentives that can be adopted to encourage developing country emission reductions?

An appropriate incentive strategy to encourage developing nations' emission reductions is to promote strategies based upon emission intensity factors. Associating clean development and offset systems would encourage developed nations to manufacture and market energy efficient systems.

Additional Topics

Submitter's Name/Affiliation: Michael J. Murray, Director of Legislative Policy, Sempra Energy

If there is an additional topic related to the design of a mandatory market based program that you would like to address, please submit comments on this form.

One issue that was addressed in your proposed amendment to the Energy Bill, but not in your White Paper, is that of cost containment. Your proposed amendments addressed this in two ways. First, GHG offsets were allowed, not to exceed 3%. Secondly, an initial "safety valve" cost cap of \$7/TCO₂ was established. Sempra Energy supports these concepts and strongly recommends that any mandatory climate change program contain provisions of this nature to improve the flexibility and cost effectiveness of such a program. In our response to Question 1, we pointed out that CO₂ is not the only GHG. The six major GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs). We therefore recommended that GHG emissions be measured in CO₂-equivalent metric tones, and credit be given for reductions of these other GHGs.

We believe that both banking and offsets should be integrated into any cap & trade program for the control of GHG, and that all GHG gasses be included. Banking would serve to encourage early reductions where possible, and since GHG emissions are cumulative, banking would not detract from the intent or impact of the program. Offsets created by GHG reductions outside of the program should not only be allowed, but also encouraged, as they would reduce the overall cost of the program. One offset opportunity is sequestration. If a user of a fossil fuel develops a way to sequester its CO₂ or other GHG emissions, credit in the form of offsets should be administratively available. Agricultural/forestry sequestration can also provide a valuable opportunity for cost effective offsets and should be encouraged, in part because of the other environmental benefits that derive from such programs. We believe limiting the use of offsets to only 3% is both unnecessary and counterproductive, and discourages other types of innovative technology development.

Additionally, we support the concept of having an option to pay a safety valve price for each CO₂ equivalent ton of GHG emissions emitted over an allowance allocation. This ensures that the program will not cause unintended significant economic consequences should the economy or market not respond or function as anticipated. We believe that both offsets and the safety valve are valuable components and not alternatives. The safety valve may limit the upside cost risks of the program, but does nothing to encourage low cost GHG reductions outside the program as an offset provision would. The safety valve would also not have the same positive affect on technology development, as would an offset program. Alternatively, an offset program would not ensure that the overall cost of the program would be controlled as the safety valve would.

Shell

Submitter's Name/Affiliation: Shell

Contact: David Hone & Garth Edward

Email: david.hone@shell.com, garth.edward@shell.com

Phone: +44-20-79346012, +44-20-75465146 or in the USA 202-466 1400 (Sara Glenn)

We have included answers to all four questions that are summarized below.

A “market-based approach” to climate change is one that creates commodity value for “carbon dioxide emissions” (and other greenhouse gases) through measures such as emission caps (e.g. a particular sector of the economy having a total limit on CO₂ emissions placed on it) or performance standards (e.g. new automobiles to target a certain CO₂ emissions per mile driven), and then allows the market to trade that commodity in order to optimize its use.

The role of an emissions trading system is to direct capital within the covered sector to the point at which it can be most effectively used to mitigate emissions. Within this, there will be periodic compliance obligations to contend with, effectively driving the system forward. Conversely, the objective is not to withdraw capital from the economy and redistribute it to projects according to some subjective or non-market based set of criteria.

The periodic compliance obligations are derived from a long-term national objective, without which an emissions trading system can function.

Capital is used to invest in facilities and mitigate emissions through certain projects. The projects then deliver the necessary reductions that free up allowances for trading in the market.

This means that the point of regulation, i.e. the holder of allowances, should be both the emitter and the party that can initiate the projects that create the reductions.

At the start of a new emissions trading scheme, grandfathering has much to offer in terms of simplicity and a relatively easy transition from business as usual to carbon managed businesses. However it is not sustainable in the long term. Whilst some industries might be able to use a benchmarking approach for allowance allocation, this is unlikely to be universally applicable. Auctioning offers the necessary transparency of allocation, but withdraws capital from the market. An auction-based approach with transparent “in-built” recycle addresses many of the allocation issues and is illustrated in our Q2 submission.

Some technologies needed to mitigate emissions hardly exist today, with one particular example being geological carbon capture and storage. Yet the scale of change (<http://www.wbcsd.org/web/publications/pathways.pdf>) required in our energy systems over the next 25 and 50 years to address the climate change issue indicates that these technologies will play an important role. Therefore, development funding needs to be set at a level commensurate with the objective of short to medium term commercialization (e.g. 10 years) through a number of large-scale demonstration facilities. Government needs to play a role in such projects, possibly through the funding of one-off infrastructural developments (e.g. CO₂ pipeline network) and a proactive approach to planning and construction permit approval.

Addressing climate change is a global issue that will require action by all countries. An open architecture approach, which encourages a global carbon market through linking with other systems, is the most positive way forward. The incentive offered by a global price for CO₂ through accessible commodity instruments will encourage a wider number of participants to seek reductions. This will result in a lower overall cost for a given goal.

Question 1. Point of Regulation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Who is regulated and where?

The role of an emissions trading system is to direct capital within the economy to the point at which it can be most effectively used to mitigate emissions. Within this, there will be periodic compliance obligations to contend with, effectively driving the system forward.

Capital is used to invest in facilities and mitigate emissions through certain projects. The projects then deliver the necessary reductions that free up allowances for trading in the market.

This means that the point of regulation, i.e. the holder of allowances, should be both the emitter and (even more importantly) the party that can initiate the projects that create the reductions. Being both the allowance holder (emitter) and the project developer means that the emissions market can be used to help finance the project by selling the future reduction in the forward market and bringing capital back. Alternatively, if no reduction opportunities present themselves, the allowance holder can purchase allowances for compliance and thus channel capital into the market for others to use for their projects. This is called “make (reductions) or buy (allowances)”. “Make or buy” is fundamental to the operation of an emissions trading system.

A second aspect is that the allowance holder must have a number of mechanisms at their disposal to mitigate emissions. These fall into three categories:

- Fuel switching – changing the fuel from a higher emitting one (e.g. coal) to a lower emitting one (e.g. natural gas)
- Energy Efficiency or emission mitigation projects – implementing a project such as a new heat exchanger to improve energy efficiency or capturing CO₂ and sequestering it through some mechanism. There are two types of project;
 - Direct – at the facility itself.
 - Indirect – at another facility or site somewhere else, as an offset, generating offset credits.
- Mode of operation – changing the way in which the facility operates, for example by processing a different raw material to produce the same end product, scheduling more efficiently or loading the facility differently (e.g. shifting production between two managed facilities to optimize emissions).

Ideally, all of these should be available to the allowance holder, again reinforcing the concept that the allowance holder is also the entity to initiate projects and mitigate emissions.

The above discussion also means that the so-called “upstream” approach, whereby the originator of a particular fossil fuel holds the allowances even though the fuel may be combusted by another party, is not conducive to a fully functioning emissions trading market.

Question 1. Point of Regulation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

A response to the threat of climate change ultimately requires all sectors of the economy to respond. Each of these segments would need to be tackled and various ways and means exist to do so. It is unlikely that one all-encompassing system can tackle all the sectors, at least not initially. However, by putting a CO₂ objective at the core of each market based approach, the prospect of a single system at some point in the future, or at least interaction between approaches, is not ruled out.

The discussion in Question 1 above leads to the conclusion that the “upstream” approach to allowance allocation is not conducive to a fully functioning emissions trading market. This means that a single economy-wide cap-and-trade programme is not possible, at least not initially. However, as is being currently demonstrated in the European Union, a large industrial emitters system, covering power generators, refineries, chemical plants, steel mills, pulp and paper mills, cement plants and other industrial concerns where direct emissions are above a certain threshold is feasible. Typically, such a system will cover about 50% of economy emissions. This would then be one major sector effectively under carbon management.

Carbon management can be progressively applied to other sectors. For example, in the EU there is now an active discussion on adding aviation to the system.

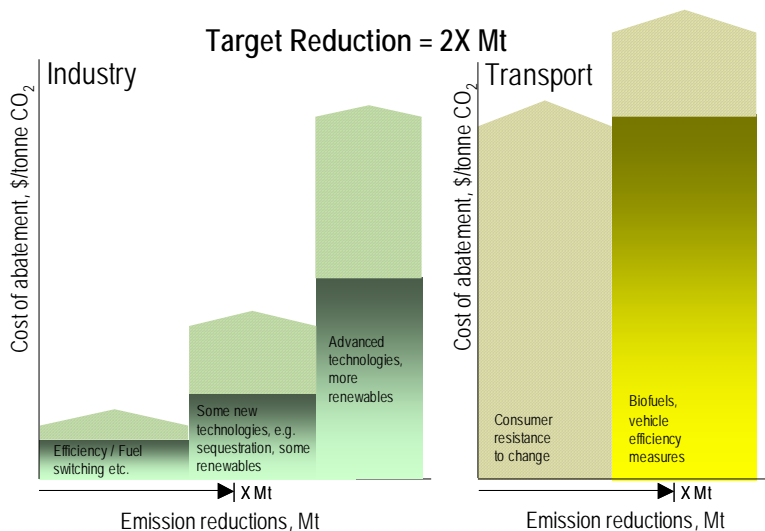
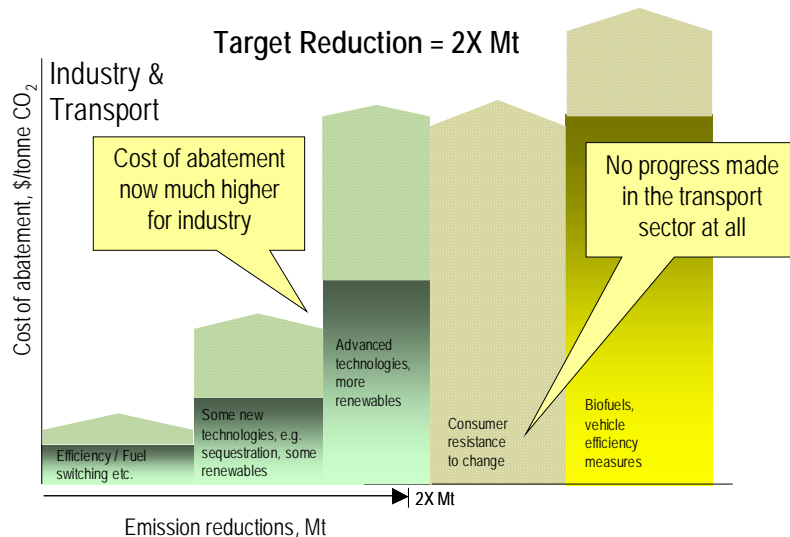
The addition of road transport to a large industrial emitters trading system has a number of technical issues associated with it. The most commonly discussed model is the “upstream” approach, which results in the fuel supplier holding emission allowances for the use of the fuel – the traditional approach of capping the direct user is an unlikely scenario due to the very large number of individual users (i.e. each motorist). On the basis of such an “upstream” approach, the following problems manifest themselves:

- The fuel supplier has no direct mechanism for reducing emissions, other than through the introduction of bio-fuels or simply by restricting availability. The “make-or-buy” link, discussed above, is severed in such a scheme. This link is fundamental to an emissions trading scheme as market price is determined by marginal abatement opportunities, such as a power generator swapping load between coal and gas fired facilities or a factory operator installing a more efficient piece of equipment.
- Fuel price becomes the only mechanism by which the supplier can potentially influence fuel usage, and hence emissions, in the short term. Therefore, the trading system simply becomes an additional fuel tax rather than a mechanism to drive investment and/or operational excellence (i.e. efficiency). Consumer behavior may not be impacted by fuel tax increases.
- A large emitters scheme appears to be able to function in the range \$10-\$40 per tonne of CO₂, with a wide range of abatement opportunities existing. At the top of this range, \$40 per tonne of CO₂ is equivalent to nearly 40 cents per gallon, but allowing

Question 1. Point of Regulation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

for free allocation of (say) 80% of the allowances, the actual cost will be less than 8 cents per gallon. The price signal for the motorist will be negligible, which argues against the value of the scheme in the first place – i.e. it will not create any reductions at all in the transport sector. Rather it will result in the transport sector in effect buying allowances from the rest of the market, which will drive up the cost to the industry sector. The lack of real reductions in the transport sector will simply be a lost opportunity in a sector that clearly needs early action.



There are three ways in which CO₂ emissions from road transport can be reduced.

Firstly, new cars can be introduced which operate at higher **vehicle efficiency**. Secondly **low-carbon fuels** can be introduced which result in lower or even zero net CO₂ emissions. Thirdly, using **lower carbon transportation**, and indeed consumers simply moving around less, can reduce emissions. Road use schemes and public transport investment can be used to shape the way we drive, the vehicles we purchase and the energy we consume.

In practice, a combination of action in all three areas will be necessary to deliver a meaningful reduction in carbon emissions from transport, but as discussed above, an upstream emissions trading system is an unlikely delivery mechanism.

Once a vehicle is on the road, its lifetime emissions are largely set. This then indicates that the purchase of a vehicle is the single biggest opportunity to influence the long-term emissions trend. The vehicle manufacturer could then be seen as the point of regulation, i.e. the holder of tradable allowances (for a deemed lifetime emissions)

and the party that can initiate projects that create the reductions.

A vehicle based approach covers a number of opportunities for regulating transport emissions, but not all. Consumer choice is still important. Some fuel switching opportunity

Question 1. Point of Regulation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

will be achieved by regulating at the point of vehicle sale (e.g. diesel, hydrogen – when available), but consumer choice still plays a role here as well. The uptake of bio-fuels where the fuel or fuel blend does not require a compatible vehicle would not be driven by this approach. However, switching back to an upstream approach just to encourage bio-fuel uptake would largely remove the incentive to encourage change at the point of vehicle purchase. Therefore, retaining a vehicle based carbon allowance system with a separate driver for bio-fuels would be necessary. A separate bio-fuel approach could also be based on tradable carbon allowances.

Question 1. Point of Regulation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

The point of regulation, i.e. the holder of allowances, should be both the emitter and the party that can initiate the projects that create the reductions. Being both the allowance holder (emitter) and the project developer means that the emissions market can be used to help finance the project by selling the future reduction in the forward market and bringing capital back. Alternatively, if no reduction opportunities present themselves, the allowance holder can purchase allowances for compliance and thus channel capital into the market for others to use for their projects. This is called “make (reductions) or buy (allowances)”. “Make or buy” is fundamental to the operation of an emissions trading system.

In the case of industry, this means the regulation targets individual emitting facilities such as power stations, refineries and cement plants. This also makes verification of emissions a relatively straightforward task as it is directed at the facility itself and the facility operator.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

As noted in Question 1, the objective of an emissions trading system is to direct capital within the covered sector to the point at which it can be most effectively used to mitigate emissions. Conversely, the objective is not to withdraw capital from the economy and redistribute it to projects according to some subjective or non-market based set of criteria. This means that allowances should be distributed without cost to the emitters.

But an essential requirement of an emissions trading system remains the allocation of allowances to the participating installations. Once the total number of allowances in the system has been determined and fixed (which then sets the overall environmental objective of the system), there are broadly three ways to do this;

1. **Grandfathering:** Free *ex ante* allocation of allowances based on some percentage of the historical emissions of the facility.
2. **Benchmarking:** Free *ex ante* allocation of allowances against a projected emissions rate (based on a technology standard or benchmark) and projected (or historical) production level of the facility.
3. **Auctioning:** The available allowances are sold to the participants by the government.

Grandfathering is a useful and simple tool to start an emissions trading system, in that with free allocation based on historical emissions, there is minimal disruption to the economy and the likelihood of shocks is diminished. However, most see that grandfathering is not sustainable, as a fixed base year (e.g. 2006) eventually becomes distant and irrelevant to future emissions from an installation and a moving base year does not encourage emission reduction (i.e. higher current emissions could give more future allowances). Grandfathering also poses problems for new entrant allocation, since the new entrant faces a considerable barrier to entry unless a new entrant reserve is created.

The other free alternative, benchmarking, is worthy of consideration, but it too has difficulties. The benchmark system requires that an industrial process can be described in relatively simple mathematical terms, e.g. xx tonnes of CO₂ per unit of output, such that the allocation can be calculated based on readily available and transparent operating data. However, simple benchmarks for complex industrial processes such as refining are very difficult, if not impossible, to achieve. That means a single installation might have its allowances calculated on the basis of multiple benchmarks, markedly increasing the complexity of the approach and the data collection requirement. Some industrial sectors say that benchmarking is ideally suited to their particular sector.

If grandfathering and benchmarking become problematic, only auctioning remains. From an allocation outcome perspective, auctioning has the benefit of simplicity, transparency and equitable treatment of new entrants and incumbents and automatically answers the question of how to harmonize allocation. However, auctioning also raises significant concerns:

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

- Payment for allowances withdraws capital from the economy that might otherwise be used to invest in emission reduction projects.
- If the revenues from auctioning are to be recycled then there is the immediate issue of an (secondary) allocation process to support the recycling. It is unlikely that such a process would be as efficient as a market-based approach in directing the capital to the best projects.
- The conduct of multiple auctions in the course of a continuous and free market has the potential to lead to price spikes and collapses.
- The administration of auctions is a serious undertaking because participation must be open to the international public but must also involve financial checks so that auction participants can guarantee to be able to pay for the allowances they bid for. This is a costly and resource heavy process that has no current precedent in any government.

Putting aside the last two bullets (but still recognizing they remain significant hurdles), this raises the question of how the transparency of an auction can be utilized, without the capital distribution problems presenting themselves. Two key elements would need to be in place;

- The funds generated from the auction need to be 100% recycled to the emitting participants within the trading system, with little or no lag between payment and receipt so as to avoid working capital issues.
- The mechanisms for recycle need to be contained within the trading system auction structure and not left to the later discretion of government.

Such an approach is possible and is described in the example given below.

Example: *“Cap and Trade” Structure with 100% Auctioning and Recycling of Funds*

1. The auction takes place at the start of each year for 100% of that years allowances. The market knows the total number of allowances available from the government some years before. The government runs the auction with the aim of 100% clearance - e.g. the reverse process can deliver this - the price is dropped each day and participants take what they need at a price of their choice until no more allowances are left.
2. Payment does not immediately take place even though the allowances are immediately distributed. However, the government calculates its revenue from the auction process for that year. Say in this example the government sells 1 billion tonnes of allowances at \$10 each, i.e. \$10 billion. Company A has one facility in this MS, emitting 950,000 tpa. They buy 800,000 tonnes in the auction.
3. In April of the same year the government collects allowances for emissions in the previous year. This becomes the mechanism for redistribution of the auction funds, with the government in effect buying back the allowances from the previous year. Say the emissions in the previous year are 1.04 billion tonnes and this number of allowances are deposited on the national registry. Therefore, each allowance is worth 10 billion / 1.04 billion, or \$9.62 each.
4. The government then bills or pays for any differences as necessary. In the case of Company A, it emitted 961,000 tonnes in the previous year. The government would pay

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Company A $961,000 \times 9.62 - 800,000 \times 10 = \1.24 million. Had Company A bought 1 million allowances it would have paid the government \$755,000.

5. Rules for new entrants and shutdowns can also be simplified and eliminate the need for structures such as a “new entrants reserve”:

For a new entrant: New entrants also have to buy all their allowances, either in the government auctions or from the market. However a new entrant is granted the equivalent of one years emissions (e.g. as per their planning application) of “recycle allowances” upon start-up of the facility. These allowances cannot be used against emissions and cannot be traded. They simply allow the new entrant to obtain (additional) recycle funds from the first auction they participate in.

Facility shutdown: Once a facility is shutdown, recycle funds cannot be received.

Although further detail and rules for special cases would still need to be developed, this outline illustrates that an auctioning approach could be put into practice. In this approach, the key financial concerns of the auction process are effectively addressed, i.e.:

1. Much less financial exposure for individual parties and less financial exposure for the government to individual participants.
2. No complex reallocation process.
3. No drain on funds from the private sector.

New entrants are also effectively catered for.

Summary:

At the start of a new emissions trading scheme, grandfathering has much to offer in terms of simplicity and a relatively easy transition from business as usual to carbon managed businesses. However it is not sustainable in the long term. Whilst some industries might be able to use a benchmarking approach for allowance allocation, this is unlikely to be universally applicable. Auctioning offers the necessary transparency of allocation, but withdraws capital from the market. An auction-based approach with transparent “in-built” recycle addresses many of the allocation issues and is illustrated above.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Questions 2a:

Technology R&D and Incentives

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?
- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

As noted in Question 1, the objective of an emissions trading system is to direct capital within the covered sector to the point at which it can be most effectively used to mitigate emissions. Conversely, the objective is not to withdraw capital from the economy and redistribute it to projects according to some subjective or non-market based set of criteria. This means that capital from the emissions market should not be used to fund special development projects and in particular should not be used for technology deployment. A fully functioning carbon market sitting on the back of our existing energy markets is the correct mechanism for deployment.

Some technologies needed to mitigate emissions hardly exist today, with one particular example being geological carbon capture and storage. Yet the scale of change (<http://www.wbcsd.org/web/publications/pathways.pdf>) required in our energy systems over the next 25 and 50 years to address the climate change issue indicates that these technologies will play an important role. Therefore, development funding needs to be set at a level commensurate with the objective of short to medium term commercialization (e.g. 10 years) through a number large-scale demonstration facilities. Government needs to play a role in such projects, possibly through the funding of one-off infrastructural developments (e.g. CO2 pipeline network) and a proactive approach to planning and construction permit approval. An active carbon market will also help bring such demonstration plants to reality.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Questions 2b:

Adaptation Assistance

- What portion of the overall allowance pool should be dedicated to adaptation research or adaptation-related activities?
- How should these allowances or funds be administered?
- What is the appropriate division between federal vs. regional, state, and local initiatives?

Adaptation to changes in climate is likely to be an evolutionary process that will develop over the coming decades. Whilst adaptation is an important component of any climate change programme, it is probably too early to begin targeting funds at specific projects. Rather, a more progressive long-term approach that targets building codes and the like, will deliver a more robust infrastructure over time.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Questions 2c:

Consumer Protections

- What portion of the overall allocation pool should be reserved to assist consumers?
- Should funds from the sale of permits or allowances be targeted primarily to low-income consumers, or should they be more widely distributed to benefit all consumers?

As noted in Question 1, the objective of an emissions trading system is to direct capital within the covered sector to the point at which it can be most effectively used to mitigate emissions. Conversely, the objective is not to withdraw capital from the sector and redistribute it to projects according to some subjective or non-market based set of criteria. This means that capital from the emissions market should not be used to fund special development projects or target particular interest groups.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Questions 2d:

Set-Aside Programs

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

None.

- Any benefit associated with early reductions should be realized through the allocation process.
- There is already an active international offset program running under the auspices of the UNFCCC, the Clean Development Mechanism. It has taken many years to develop and, by our own observation, at considerable expense, time and effort. Although not fully functioning at its ideal level, this approach is now operational and the supporting market is active and liquid. A cost effective approach to the use of offsets would be the utilization of this mechanism through the UNFCCC.

Recognition of the specific carbon currency (ERU) within the UNFCCC Clean Development Mechanism would also effectively link any future US greenhouse gas program with other international schemes such as the EU-ETS and the proposed LFE system in Canada.

No other set aside programs are required.

Question 2. Allocation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Clarifying Questions 2f:

Allocations for downstream electric generators?

- Should electricity generators be included in the allocation if they are not regulated?
(Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

As noted in Question 1, the point of regulation, i.e. the holder of allowances, must be both the emitter and the party that can initiate the projects that create the reductions. Therefore, in the case of the electricity market, the generator becomes the point of regulation.

In the main body of our answer to Question 2, a discussion on allocation is presented. This would apply equally to the electricity generator.

An issue that has arisen in the EU-ETS with regard allowance allocation to the electricity generators should be considered when designing a system for the USA. The issue relates to the pass-through of the marginal market allowance price to the consumer, even when most of the allowances are granted to the generator for free. In this case there is the possibility of "windfall profits" to the generator. However, the incidence of this phenomenon is also dependant on the structure of the electricity market in a specific location.

Question 3. International Linkage

Submitter's Name/Affiliation: **Hone & Edward / Shell**

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

Yes.

Addressing climate change is a global issue that will require action by all countries. An open architecture approach, which encourages a global carbon market through linking with other systems, is the most positive way forward. The incentive offered by a global price for CO₂ through accessible commodity instruments will encourage a wider number of participants to seek reductions. This will result in a lower overall cost for a given goal.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: **Hone & Edward / Shell**

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?

No.

Investment in energy infrastructure is a long-term undertaking. Whilst the market does not need the exact reduction target for every year far out into the future, it does need sufficient information on which to assess long-term supply-demand forecasts and therefore make some assessment of long-term carbon prices. This then drives investment.

Such information comes from a stated long-term goal for any national programme, and then staying the course.

Including future on-off dependencies based on reviews and assessments of an unknown nature discourages the necessary long-term investment that will deliver the goal. Rather, business will focus much more on short-term compliance.

Southern Company

Submitter's Name/Affiliation: Chris M. Hobson/Southern Company
Contact: P.O. Box 2641, 600 North 18th Street, Birmingham, Alabama 35291
Email: cmhobson@southernco.com
Phone: 205-257-2812

Provide an executive summary of your response(s). *Do not exceed the remainder of this page.*

Southern Company strongly supports a voluntary approach to the climate change issue that focuses on development and deployment of innovative, cost-effective, lower-emitting technologies. We oppose approaches that impose mandatory regulation of CO₂ and/or greenhouse gas (GHG) emissions – whether they are intensity-based, cap-and-trade-based, or tax-based. Our comments on certain aspects of a mandatory program are made in response to the Committee's request and should not be construed to constitute endorsement of any mandatory program to address GHGs or CO₂. Southern Company is also a member of the Edison Electric Institute (EEI) and hereby supports and endorses EEI's comments on the White Paper.

It is important to note that the Committee's request for comments has left out the most basic elements that define the stringency of any GHG control program – the timing of its imposition, the level of reductions required, and the availability of cost-effective technology with which to comply with the program. The Committee has also left out the important issue of whether there is a safety valve, an important feature that can limit the economic impact of any such program. These omissions make it difficult for interested parties to comment on the other aspects of a mandatory program.

As to the Committee's specific questions, on the point of regulation, we favor approaches that address the GHG emissions of all sectors, not just large emitters like fossil-fuel-fired electricity generation. There are pros and cons to regulation in an "upstream" or a "downstream" manner. The Committee should also consider hybrid systems that include an upstream point of control for some sources, like transportation, and a downstream point of control for others, like the electric utility industry (all within the context of an economy-wide cap and trade system).

Southern Company believes that allowances should be allocated to emitters, with a small set-aside for new sources, and, for utilities, should be based on heat input, using historical data. Southern Company generally opposes allowance set-asides for the many entities listed by the Committee because they increase the cost of the program for the customers of regulated entities.

Southern Company believes that the door should be left open for any domestic program to link to those in other countries. It is especially important that regulated entities be able to purchase and use international offsets for compliance.

As to whether further steps should be included in a mandatory program based on action by other countries, Southern Company believes that any further steps should require affirmative action by the Congress, and should be contingent on many factors, not just real action by other countries. For example, before taking further steps, the Congress should consider the need for such steps (from an environmental standpoint), and an assessment of whether technology is available.

Question 1. Point of Regulation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Who is regulated and where?

Clarifying Question 1a:

- Is the objective of building a fair, simple, and rational greenhouse gas program best served by an economy-wide approach, or by limiting the program to a few sectors of the economy?

Program coverage should be economy-wide, not sector-by-sector

We believe that any policy addressing climate change should comprehensively cover all sources/sectors and all gases. This means that any program should be economy-wide. A number of reasons for this have already been identified in the white paper. Many sectors emit greenhouse gases, with no one sector contributing a large majority of the emissions, so all sectors should be covered to meaningfully address climate change. Since many sectors emit, it is only fair that all of those sectors be subject to controls. Further, economic theory and research tell us that the most efficient, least-cost approach to limiting emissions is to cover all sources and sectors. If, for example, emissions limits are placed only on electricity generators and large industrial sources, all actions must come from those sectors, even though there may be lower-cost reductions in other sectors.

Some will argue that this can be addressed by allowing the controlled sources to acquire and take credit for offsets (reductions from uncontrolled sectors) that may be cheaper than the controlled sources making reductions themselves. Clearly, any sector-specific approach should allow for unlimited use of offsets for compliance; however, experience has shown us that implementation of offset provisions is fraught with difficulty. Because some stakeholders are seriously concerned about the credibility of offsets, requirements for developing and using offsets have, in the past, tended to be highly complex, administratively burdensome, and lead to high transaction costs for those acquiring the offsets. The CDM mechanism under the Kyoto Protocol is one good example of this. While in concept the CDM would seem to have great potential for low-cost offsets, the reality is that the process for approval is difficult and complex, and to date only a handful of projects have actually been approved.

Beyond this, however, using offsets as a substitute for economy-wide coverage once again raises the question of fairness. If there are, indeed, low-cost reduction options outside of the covered sectors, why should it be the responsibility of those in the covered sectors to identify and pay for low-cost options in other sectors? Why shouldn't everyone have a responsibility to look at their own emissions sources and make their own reductions, since they are in the best position to know and identify their own emissions as well as the cost effectiveness of the alternatives for reducing those emissions?

Sector-by-sector coverage can also inappropriately skew consumer incentives, particularly with regard to energy choices. Assume that electricity generation is the only energy use that incurs a carbon price as a result of regulation. Now, consider a homeowner choosing the type of energy to use for space and/or water heating. In this situation, the gas option would have an inappropriate competitive advantage over the electricity option. If the homeowner chooses gas

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

for these heating services, they would incur no cost penalty for the greenhouse gases they emit because these applications would not be covered by the regulation. However, if they choose electricity (which is produced in part from fossil fuel use), they would pay an increased cost to cover the carbon penalty on the production of the electricity they use. This could result in the gas option being chosen by the homeowner because it is relatively cheaper, when in fact the electricity application might be the more cost-effective if the carbon penalty were consistently applied for both options. Undesirable consequences of this could include less overall emissions reductions than envisioned by the program.

Finally, we do share the concern expressed in the white paper that once a system is set up to cover only a few sectors, there is a strong likelihood that the system would never be expanded to cover other sectors at a later time. The OTAG (Ozone Transport Assessment Group) process provides a good real world example of this. OTAG was a multi-stakeholder process that took place in the mid-1990s to look at reductions of ozone precursors in what has become known as the NO_x SIP Call region. OTAG looked at cap-and-trade mechanisms as a means to reduce NO_x emissions from electricity generators and others. In the end, the recommendation was to impose a cap on the electricity generators initially, with the intention to bring transportation sources into the system at a later date. As history has shown, the cap was placed on the electricity generators, but there has been no effort to date to look at expanding the system to cover transportation.

Sector-specific approaches would also tend to set up precedents, infrastructures, and constituencies that would be hard to move away from later, should expansion to achieve economically efficiency and additional reductions prove desirable. Any control program capable of achieving significant greenhouse gas reductions over the long term (should that prove necessary) would inevitably have a very large negative economic effect on society. Thus, it is essential that any control program be designed from the outset to be as economically efficient as possible to minimize negative impacts on society.

Question 1. Point of Regulation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 1b:

- What is the most effective place in the chain of activities to regulate greenhouse gas emissions, both from the perspective of administrative simplicity and program effectiveness?

The appropriate point of regulation cannot be assessed in isolation of the other features of the control regime.

The white paper does a good job of capturing the pros and cons of upstream and downstream systems. In the policy debate, the discussion has focused around two factors: the administrative feasibility for the *regulator* of a program involving huge numbers of sources, and the administrative and institutional burden on the *regulated* of incorporating the new requirements into their operations – as well as, of course, whether the system appropriately regulates as many sources of GHG emissions as possible. Electric utilities are generally familiar and comfortable with a downstream cap-and-trade system as a result of the Clean Air Act SO₂ trading program. As a result, some feel that it is appropriate to use this approach for greenhouse gas control, at least for electricity generators and other large industrial point sources. Administratively, both the regulators and the regulated know how to do this, which is advantageous for keeping the administrative costs low. The appeal is obvious if a sector-by-sector approach is used.

However, for economy-wide greenhouse gas regulation, downstream control for all sectors has its challenges. In particular, the administrative burden of controlling all individual residential and transportation sources would be astronomical. It would require regulation and monitoring of every vehicle on the road and all fossil-fuel use (space and water heating, cooking, etc.) in every home. The control points would number in the millions, making downstream GHG regulation simply impractical for many sources. Going upstream to fossil fuel producers or, in some cases, slightly more midstream to intermediaries (refineries, gas pipelines, etc.) provides options for reducing the number of sources to something more practical.

A hybrid regulatory system could be used that mixes upstream, downstream, and midstream points of control within the context of a cap and trade system. Establishing such a system to cover fossil energy use will require ensuring that some sources “do not slip through the cracks” and escape regulation, and will also require ensuring that some uses do not get “double-counted” or double controlled. For example, going upstream for fossil fuel would require provisions for “crediting” fossil fuels that are not combusted but are used for process feedstocks or that are exported. It would also be necessary to capture fossil fuel that is produced out of the U.S. and is imported for combustion. Finally, it would also be necessary to incorporate provisions for “crediting” fossil fuels whose GHG emissions are captured and sequestered (when that technology is economically practical).

For a truly comprehensive system, the question of upstream vs. downstream control for regulation of *non*-CO₂ greenhouse gases and non-energy uses must also be considered. Many of these GHGs are produced and released as a by-product of industrial processes where it would only be practical to control at the point where the process occurs. This type of approach would

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

be compatible with an upstream system for fossil fuel combustion. However, for maximum flexibility in the overall economy-wide system, it would be necessary to establish “exchange rates” among the various gases. While GWP rates are often suggested as the appropriate exchange rates, research shows that this approach does not accurately capture the comparative effects of the gases on radiative forcing.

Ultimately, the question of whether the point of regulation should be upstream, downstream, or some hybrid cannot be assessed in isolation, but must be assessed in the context of all the features of the control program as a whole. No matter where mandatory GHG regulation is to be imposed, its economic impact should be fully understood before enactment. Regardless of the point of regulation, any mandatory GHG regulatory program would impose a penalty on the economic growth of the U.S. until non-emitting technology is developed and deployed on a wide scale.

Finally, it should be emphasized that decisions regarding allocation of allowances are independent of the point of control. For example, for an upstream system, allowances could still be allocated to electricity generators, and conversely, for a downstream system, allowances could be allocated to producers. This point will be addressed more fully in the discussion of allocations in the sections below.

Question 2. Allocation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Should the costs of regulation be mitigated for any sector of the economy, through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and method of such allocation?

Allowances should be distributed by allocation, not auction.

Contrary to what the white paper states, distribution of allowances by auction may not be less costly than distribution based on allocation rules. The white paper seems to imply that the need for development and administration of allocation rules is a reason to have an auction. However, while developing rules for allocation is likely to be a contentious process, once the rules are in place, distributing the allowances in accordance with the allocation rules would be straightforward. Those who would receive allowances will be known in advance, and accounts could be set up in advance. The distribution to these accounts in accordance with the rules could be mechanized and take place virtually automatically, while an auction would require significant ongoing administrative costs.

Developing rules and procedures for an auction is by no means a simple task. Using the auction results as the basis of allowance distribution would be complex. For each auction, resources will be required to process the bids, including review to ensure that each bid has been prepared in accordance with the rules. For an economy-wide system, there would likely be many bidders. Winners and losers would have to be determined and allowances be distributed in accordance with the results. The distribution from each auction's results would be unique relative to all other auctions, so it will not be as simple and straightforward (and cost-effective) to implement as an allocation. In the end, the distribution by auction could well end up being more costly than distribution by allocation.

Furthermore, while the white paper states that allocation might result in unintended competitive advantages, including windfall profits for some market participants, this is not the case for utilities subject to rate regulation. For the many utilities in this situation, savings from an allocation system would be passed through directly to customers, resulting in lower rates than under an auction system.

Allocation to those who will incur compliance costs also provides a base for maintaining greater stability in those costs and, in turn, the product costs (and related profit margins) that reflect those compliance costs. Commodity markets can be volatile. We have been experiencing this first hand in both oil and natural gas markets. In 2001, we saw this in the California power markets. In the oil and gas markets, fuel users rely on these short term commodity markets to varying degrees. Some will have long-term contracts for the vast majority of their needs, relying on the short-term markets for relatively little of what they use. Others may rely more heavily on those short-term markets. Obviously, those more dependent on the short-term markets for their needs will experience greater volatility in their costs than those less dependent on those markets.

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A good example of the consequences of being largely dependent on the commodity markets can be seen in the power markets in California in 2001. At that time, retail suppliers were not able to purchase power through long-term markets; thus, they were reliant on the market for virtually all of their needs. When demand for power exceeded supply, prices in the short-term markets became high and volatile, and the retailers did not have the long-term contracts to serve as a buffer against the impacts of those high and volatile costs. The result was that retailers that could not pass those costs through suffered losses, with one eventually declaring bankruptcy, and the customers of those who could pass on the costs faced dramatic increases in their electricity bills.

Allocations to those who will use them for compliance serve the same stabilizing function for allowance compliance costs as long-term contracts do for other commodity costs. If all allowances must be purchased through the auction/market, significant, increased uncertainty is introduced into the overall cost of compliance. Alternatively, allocating the bulk of the allowances needed for compliance (with only a small percentage set aside for an auction for new entrants) provides a large block of allowances that are not subject to the uncertainty and volatility of the market. This will make compliance costs more certain and stable, contributing to more stable prices for customers and more stable returns for investors.

This stabilizing function is particularly important during the early years of a new program, as well as in the first years of periods when there is a change in the stringency of control requirements. During these periods, prices can be quite volatile as the market seeks the appropriate price level. Examples of this include the start-up of the NO_x markets in the Northeast OTC and the SIP call region. More recently, the European Union CO₂ Emissions Trading System provides another example of this phenomenon.

Finally, it is not possible to address the details of how allocations should be handled without knowing all the details of a potential mandatory GHG control program. However, it should be emphasized that decisions regarding allocation of allowances are independent of the point of control. For example, for an upstream system, allowances could still be allocated to electricity generators, and conversely, for a downstream system, allowances could be allocated to producers.

Question 2. Allocation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2a:

Technology R&D and Incentives

- What level of resources should be devoted to stimulating technology innovation and early deployment?
- What portion, if any, of the revenues from permits or the auction of allowances should be reserved for technology development? If some portion is reserved for this purpose, should that set-aside flow to the federal government with funds spent through the traditional appropriation process? Or should the funds be allocated directly to a non-profit research consortium, chartered by the federal government, which would then administer technology development and deployment projects? Or should there be some combination of these two options?
- What criteria should be used to determine how such funds are spent and which projects are chosen?
- What other mechanisms should be used to promote technology deployment? Options include tax credits, cost-sharing for demonstration projects, assistance to state energy programs, etc.

As stated above, Southern Company believes that in any GHG program, the vast majority of allowances should be allocated to emitters, with a small set-aside for an auction for new entrants. Revenues from such an auction – or from the sale of allowances at a safety valve price – would be well spent on technological development. However, because we favor a small auction, it is not likely that such revenues, in the absence of a safety valve, would be large. If there were a safety valve and proceeds from such permit sales were large, we do believe that the revenues should be earmarked to ensure that they are in fact spent on technological development, rather than flowing freely into the coffers of the federal government and therefore subject to the vagaries of the appropriations process. As to other mechanisms for technological development, we support full funding and appropriations for the technological development provisions of the Energy Policy Act of 2005, as well as full funding and appropriations for ongoing technological development and deployment efforts like FutureGen and the Asia Pacific Partnership on Clean Development and Climate.

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2b:

Adaptation Assistance

- What portion of the overall allowance pool should be dedicated to adaptation research or adaptation-related activities?
- How should these allowances or funds be administered?
- What is the appropriate division between federal vs. regional, state, and local initiatives?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other programs would only increase costs for the regulated sector.

Question 2. Allocation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2c:

Consumer Protections

- What portion of the overall allocation pool should be reserved to assist consumers?
- Should funds from the sale of permits or allowances be targeted primarily to low-income consumers, or should they be more widely distributed to benefit all consumers?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other -- albeit worthy -- programs would only increase costs for the regulated sector. Impacts on consumers and the potential need for additional assistance for low-income households should be taken into account when considering the timing, level of reductions required, and other provisions (such as a safety valve) of any mandatory GHG program.

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2d:

Set-Aside Programs

- What portion of the allocation pool should be reserved for the early reduction credit program and the offset pilot program?
- Are other set-aside programs needed?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other -- albeit worthy -- programs would only increase costs for the regulated sector.

Nonetheless, we do believe that an early reduction credit program should be available, with allowances available from outside the allocation pool, and that regulated entities should be able to use offsets for compliance (not as part of a "pilot program").

With respect to an early reduction credit program, Southern Company believes that entities that have participated in the 1605(b) Voluntary Greenhouse Gas Reporting system developed and implemented by the Department of Energy ought to be able to claim credit for those reductions that have been reported and can be verified in the future. These early reduction credits would best be implemented through a program that resulted in baseline protection for covered entities that have voluntarily invested in programs that reduced or avoided greenhouse gases in advance of a mandatory program. While the final revisions to the 1605(b) guidelines have not yet been released, based on the most recent draft, we believe that 1605(b) will no longer be able to adequately identify all early action. As a result, any mandatory program that allows credit for early action would need to provide its own protocols and not rely solely on the revised 1605(b) database to determine what qualifies.

Southern Company believes that any mandatory market based program to control greenhouse gas emissions should contain provisions for project-based offset credits. A properly designed offset credit system should provide a market incentive for the identification and development of domestic and international projects that reduce or sequester greenhouse gas emissions. The offset credit system would enhance market liquidity and lower costs by increasing the number of participants and the supply of compliance units in the domestic emissions trading market. However, unlike the question posed in the white paper, we do not believe that an offset credit program should be implemented as a pilot program that has a small set-aside pool carved from the overall pool of allowances. While the white paper anticipates a pilot or demonstration program aimed at resolving issues having to do with measurement, verification and certification of the project reductions, a pilot program by definition implies a temporary program that will not bring the market liquidity or certainty to the participants of a mandatory program.

An offset credit program that allowed projects from outside of a mandatory cap could provide covered participants with a low-cost means of achieving compliance with their targets by providing an alternative to domestic abatement action or the purchase of domestic permits at the

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safety valve price. Clear eligibility requirements, a process for generating offsets that is transparent, efficient and consistently applied, and clarity as to the ability to use, trade and bank offsets will all facilitate development of the offset market. It is obvious that some government oversight will be essential to maintain the credibility and transparency of the system. Further, by allowing international offsets to be used in the domestic program, a mandatory program could also serve as an incentive for other major trading partners to participate in projects that would lower greenhouse gas emissions worldwide. Any U.S. program should allow for the use of Clean Development Mechanism credits as well as other international offsets even without a formal linkage to other mandatory regimes. It is important to recognize that allowing the use of credible offsets from outside the universe of covered sources without reducing the allowance pool does not result in increasing total emissions since it involves crediting external reductions that would not have otherwise occurred.

Question 2. Allocation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2e:

Special considerations for fossil-fuel producers?

- Would some upstream fossil fuel producers be unable to pass the cost of purchasing permits or allowances through in fuel prices if they are the regulated entity?
- Is there a sufficient policy rationale for addressing these costs to justify the complexity of setting up and administering an allocation system for these entities?
- What other options exist to address the inability of fossil fuel producers to pass through these costs?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other -- albeit worthy -- programs would only increase costs for the regulated sector.

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2f:

Allocations for downstream electric generators?

- Should electricity generators be included in the allocation if they are not regulated? (Clarification: We mean to ask if an electric generator should be included in the allocation if the greenhouse gas regulation occurs at a point of regulation that is upstream or downstream from the generator, but not the generator itself.)
- What portion of the total allocation should be granted to the electric power sector? Should it be based on the industry's share of greenhouse gas emissions or some other factor?
- Should generators in competitive and cost-of-service markets be treated differently under an allocation scheme?
- How should permits or allowances be distributed within the electric sector? Should it be based on historic emissions? Electricity output? Heat input?

Electricity generators should still receive an allocation of allowances, even if the cap is placed upstream on the producers, rather than downstream on the emitters.

Even if the limits are imposed on the fossil fuel producers (as in an upstream system), electricity generators are the ones that would have to adjust their fuel mix to ensure that they could still meet their customers' demand for electricity within the new confines of the fuel markets. The generators would still have to incur costs to adjust their mix of generation fuel purchases, and the mix of generation equipment itself, no differently than if the limits were placed on their own emissions. As a result, even if the point of control is upstream, the generators would still bear costs to comply with the limits, and should still receive the allowance allocations.

Allocations to electricity generators should be based on heat input, not output. Southern Company's view is that under a mandatory cap-and-trade system for GHGs, allowances *should* be allocated to electricity generators, and that those allocations should be fuel differentiated and based on heat input, not on electrical output. Fuel differentiated, heat input values were used for allowance allocation under the very successful Title IV SO₂ control program and would be equally appropriate for CO₂. This applies regardless of whether the system's point of regulation is downstream on direct GHG emissions from generation or upstream on the fossil fuels used to generate electricity. Further, the allocation formula should also include adjustments to account for fuel type.

To begin with, *allowances should not be allocated to non-fossil-fuel generators*. Imposing a cap-and-trade system for CO₂, whether upstream or downstream, would automatically give renewables and nuclear an economic advantage because affected sources of fossil generation have the additional cost of allowances (either directly, or through the cost of fuel, depending on the point of regulation), while the zero-emitting generation units do not. Allocating allowances to these non-affected, non-emitting technologies would essentially be a subsidy to them. Since

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owners of the non-covered, non-emitting technologies do not bear the cost of allowances to operate, they would sell them, either internally to their own fossil sources or externally to others. Thus, this allocation would effectively be a subsidy paid by users of fossil fuel who would already be paying substantial costs for emission reductions, and would now have to buy the allowances from the generator with no compliance obligation.

Differences between generating units fired with different fossil fuels also need to be addressed in allowance allocation. For example, gas-fired units, whether measured on input or output, have lower CO₂ emissions and less need for allowances than coal-fueled units. This should be reflected in a fuel-differentiated allocation plan that recognizes the difference in allowance needs for different fuel types.

Finally, input-based allocations are preferable because they provide a common denominator for allocating allowances to cogenerators as well as to electricity-only generators. It would be very difficult to apply output-based allocations to cogeneration. There does not seem to be a common denominator for allocating between steam output and electricity output that is as simple to use or as easy to understand as heat input. Heat input is the only common denominator across this group of sources.

Allocations to electricity generators should be permanent and based on historic data, not updated.

Our view is that allowance allocations should be made on a permanent historic basis and should not be updated. This applies regardless of whether the system's point of regulation is downstream on direct GHG emissions from generation or upstream on the fossil fuels used to generate electricity.

An unchanging allocation provides a firm foundation on which to plan operational changes and capital expansion investments necessary to respond to a mandatory GHG cap while maintaining electric service and accommodating growth. Our resource planning process looks twenty years into the future. Knowing allocations for the long term also aids in this process. The scrutiny applied by state public utility commission regulators enhances the need to comply in the most cost-effective manner and not increase potential stranded costs. This already challenging process would be further complicated by an allocation mechanism whereby allocations are known only a few years in advance. As regulated retail providers with legally granted franchises, we still have an obligation to serve all customers. Unlike some generators, our retail providers do not have the option to curtail production if it looks like they will be short of allowances (or if they cannot obtain the needed quantity of fuel because the fuel supplier is short of allowances) due to underestimation of the allocation for that year.

An unchanging allocation enhances the development of a robust allowance market. As noted above, longer-term certainty regarding allocations enables more efficient planning. Without this certainty, sources may decide that they need to hold more allowances to cover any differences between the number of allowances they think they will get and the number that they will actually get. This means that, for any given control level, there could be fewer allowances that a source can make available for sale, thus limiting the development of the market for allowances. With

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greater certainty regarding allocations, sources would not need to hold additional allowances to cover this contingency, and could make more allowances available for sale than they otherwise might. Thus, this certainty contributes to the development of the market, and lessens any need for new source set-asides.

Further, *a single allocation based on historical data eliminates the “production subsidy” created when allowance allocations are updated on the basis of future data.* With a historically-based allocation, nothing a generator can do in the future affects the size of its allocation; in particular, a generator cannot alter its operation to increase the size of its allocation. With an updated allocation, however, generators can receive a larger allocation by increasing output. Because allowances are valuable, the allocation method itself provides an incentive for the generator to increase output beyond what it would be with a single, historically-based allocation method. With updating, the variable cost of operation is reduced by the value of allowances earned with that unit of output, making that variable cost less than it would be with a historically-based allocation. This lowered variable cost translates into a lower price for electricity, which increases demand. The increased output to meet this demand could lead to negative consequences including increases in other non-capped emissions and less efficient use of resources in the economy, relative to what would happen under an allocation mechanism that does not provide a subsidy. Although the negative effects of updating would, in principle, be somewhat greater for input-based allocations than for output-based allocations, the important message is that any updating arrangement has significant perverse effects that should be avoided.

If allocations are to be updated, allocations should be known at least ten years before each control period. This means that the initial allocation should cover at least the first ten years for which the cap will be in place. Allocations for Year 11 of the cap would need to be finalized by the end of Year 1, those for Year 12 would need to be finalized by the end of Year 2, and so on. This approach aids in capital expansion and operational compliance planning, contributes to the development of a robust emissions trading market, and minimizes the “subsidy” problem described above.

Further, *any allocation or reallocation to electricity generators should be based on more than a single year of data.* Use of an average of the three highest values over a five-year period, for example, smoothes out anomalies that could be present in a single year's worth of data from abnormal operation, unusual weather, or other factors.

Question 2. Allocation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2g:

Allocations for energy-intensive industries?

- Is there a sufficient policy rationale to have an allocation to selected energy-intensive industries? What industries should be included in the allocation?
- What portion of the overall allocation framework should be reserved for these industries?
- What are the appropriate metrics for determining allocations across different industries?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other -- albeit worthy -- programs would only increase costs for the regulated sector.

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Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Questions 2h:

Allocations to other industries/entities?

- What other industries/entities (e.g. agriculture, small businesses, etc.) should be considered in the allocation pool?
- What should be the basis for their share of the total allocation as well as for the distribution among such industries/entities?

Southern Company believes, as we have already stated, that the vast majority of allowances should be allocated to regulated entities, with a small set-aside for an auction for new entrants. Set-asides for other -- albeit worthy -- programs would only increase costs for the regulated sector.

Question 3. International Linkage

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

While Southern Company strongly endorses the concept of a voluntary, technology-based and carbon intensity-based approach to the global climate change issue, it believes that any mandatory greenhouse gas reduction legislative proposal should be designed so that it does not preclude the possibility of linking a mandatory program in the United States with other programs throughout the world. This linkage could be as simple as accepting allowances/credits from other programs, or could include more complex linkages that include reciprocal acceptance of allowances from the other system.

The global nature of the greenhouse gas emission issue makes the reduction, avoidance or sequestration of emissions in any part of the world just as valuable as the reduction of emissions within the United States. The main benefit of linking similarly structured emissions trading programs is increased economic efficiency. Linking trading or reduction programs should yield economic benefits overall due to the creation of a market with a larger number of participants with an increased diversity of sources and emissions control costs. However, close linkage with reciprocal acceptance of allowances from other systems is likely to create winners and losers, relative to no linkage. There are a number of issues that would affect who the winners and losers are, including the stringency of targets and timetables; the existence of a safety valve; what sources, sinks and greenhouse gases are covered; the manner of allowance distribution, treatment of new entrants and opt-in provisions; the existence and use of offsets; monitoring and verification; and the treatment of compliance issues (banking, borrowing, penalties, and enforcement). If this linkage is not undertaken carefully, linking systems could lead to adverse impacts for the U.S., and could make the achievement of individual domestic targets more difficult by changing national emissions levels. In particular, linking a U.S. system with a system where allowance prices are higher than they are in the U.S. will result in higher allowance prices and higher compliance costs in the U.S. than if the two systems were not reciprocally linked.

As was discussed in our comments on an offset credit system, if the domestic U.S. program were to additionally allow for linkage to international greenhouse gas emission reduction projects, it could also serve as an incentive for other major trading partners to participate in efforts that would lower greenhouse gas emissions worldwide that would not otherwise have been realized.

Question 3. International Linkage

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 3a:

- Do the potential benefits of leaving the door open to linkage outweigh the potential difficulties?

Any mandatory program for carbon control will be complex, difficult and expensive to implement, whether it is global in nature or focused only on domestic actions. The need to consider actions on climate in a global context for environmental, economic and equity reasons outweigh any inherent difficulties that will arise from a linked program's design and implementation. Therefore, the door should be left open to linkage, so that there is at least an attempt to work through the potential difficulties.

Question 3. International Linkage

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 3b:

- If linkage is desirable, what would be the process for deciding whether and how to link to systems in other countries?

The way linkage is addressed is fundamental to any program design and needs to be considered and taken into account at the outset. Climate change is a global issue and ways must be developed to allow actions that consider the environmental, economic, trade, security and equity issues involved. Forums such as the G8 and the Asia-Pacific Partnership on Clean Development and Climate are good places to have these discussions.

Question 3. International Linkage

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 3c:

- What sort of institutions or coordination would be required between linked systems?

Coordination is needed to ensure the development and deployment of technologies to lower the carbon intensity of economies. It would be desirable to use forums that are already focusing on this approach, such as the G8 and the Asia-Pacific Partnership on Clean Development and Climate. These forums are focused on clear, measurable technological results and are not currently burdened with time-consuming debates about rules and regulations. "Linkage" can occur through cooperative agreements like these, rather than through binding treaties. Experience is showing this approach to be desirable.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

If a key element of the proposed U.S. system is to “encourage comparable action by other nations that are major trading partners and key contributors to global emissions,” should the design concepts in the NCEP plan (i.e., to take some action and then make further steps contingent on a review of what these other nations do) be part of a mandatory market-based program? If so, how?

The Committee asked whether further steps in a mandatory program should be contingent on action from other countries. Southern Company feels that further steps (beyond an initial mandatory U.S. program, to which we are opposed) should definitely be contingent on real actions by other countries. A major failing of the Kyoto Protocol is its lack of requirements for developing countries, whose GHG emissions will soon overtake those of the developed world. However, even many nations subject to the Protocol have made commitments to reductions that are not occurring. Therefore, any further action by the United States should be contingent on **real**, verified reductions in GHG emissions by key trading partners as well as other major emitters.

In addition, such further actions should only be undertaken upon affirmative action by the Congress, and should not be left to the decision of any administrative agency. Importantly, beyond actions by other countries, such further steps by the U.S. should be contingent on many factors – including a demonstration of need (is there convincing scientific evidence that further GHG reductions are needed?), and an assessment of whether technology is available at an affordable cost to make further reductions.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 4a:

- What metrics are most valuable for comparison of developed and developing country mitigation efforts to U.S. efforts?

Metrics to be used for comparison of other countries' actions to those by the United States should be based on the reduction metrics used by the U.S. – e.g., if the U.S. reduction program is intensity-based (as is preferable), then a comparison should be made to the intensity reductions of other countries.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 4b:

- What process should be used to evaluate the efforts of other nations and how frequently should such an evaluation take place?

Evaluation of the adequacy of efforts by other nations in order to decide if the U.S. should undertake further actions should take place in the proper international forums and should take place well after implementation of any mandatory programs in the United States.

Question 4. Developing Country Participation

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

Clarifying Question 4c:

- Are there additional incentives that can be adopted to encourage developing country emission reductions?

The United States is making efforts to encourage key developing countries to increase their GHG intensity and to adopt clean technologies through the Asia Pacific Partnership on Clean Development and Climate, as well as through industry/government partnerships like FutureGen. Such efforts should be encouraged through adequate appropriations.

Additional Topics

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

If there is an additional topic related to the design of a mandatory market based program that you would like to address, please submit comments on this form.

Southern Company is pleased that the Energy and Natural Resources Committee has afforded interested parties the opportunity to comment on "Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System," hereinafter the White Paper. Southern Company is also a member of the Edison Electric Institute (EEI) and hereby supports and endorses EEI's comments on the White Paper.

As the Committee knows, consideration of whether – and if so, how – to regulate greenhouse gas or CO₂ emissions is a question that has profound implications for the economy and energy policy of the United States. Fossil fuel use and the attendant greenhouse gas emissions are the basis of the modern lifestyle that we enjoy and to which millions around the world aspire. To reduce greenhouse gas emissions while continuing economic growth in both the U.S. and throughout the world will require the development and deployment of innovative, lower-emitting energy technologies. These technologies are not, despite the assertions of some, currently available at the scale and cost-effectiveness needed for wide deployment. They will need adequate development time and funding to be ready for widespread use in the next half century .

It is for these reasons that Southern Company strongly supports a voluntary approach to the climate change issue that focuses on development and deployment of innovative, cost-effective, lower-emitting technologies and on reducing the greenhouse gas intensity of the economy. A voluntary, intensity-based, technology-focused approach allows for continued economic growth while technologies are developed. Such a voluntary intensity-based approach is embodied in the Climate Vision program, which combines the voluntary actions of many major industry sectors with a goal to reduce the greenhouse gas intensity of the U.S. economy by 2012. Voluntary industry/government partnerships are also beginning to make major strides in the development of clean energy technologies. These include the incentives provided in the Energy Policy Act of 2005, as well as other federal/industry programs like FutureGen, in which Southern Company is playing a key leadership role.

A critical component of the voluntary technology development program is the sharing of current and new clean energy technologies with other nations. These efforts are ongoing as well, through efforts coordinated by the G8 and through the Asia-Pacific Partnership on Clean Development and Climate. Such international partnerships allow the developing world to adopt clean, efficient technologies as they increase their economic growth and energy use. These efforts allow climate change to be addressed in a pro-growth context.

In contrast to these successful voluntary programs that focus on economic growth and technology development, the White Paper appears to contemplate a mandatory, cap-and-trade based regulatory regime for GHGs. Real-world experience and modeling analysis both demonstrate how difficult and costly it is to make GHG emissions reductions in the face of robust economic growth. Mandatory emissions reduction programs – such as those instituted by

Additional Topics

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

the European Union and by Canada -- have been adopted in an attempt to meet the targets of the Kyoto Protocol. The countries that have made such commitments and that have enjoyed economic growth -- including Spain, Japan, and Canada -- are finding that they are not on track to meet their Kyoto targets. The countries that are on track to meet their Kyoto targets are generally those in the former Soviet bloc where significant economic restructuring has occurred since the 1990 baseline year. A few, like the U.K., made reductions early on by switching much power generation to natural gas, but are now shifting back to coal as natural gas prices have increased. It is clear that, given the current status of technology, these mandatory greenhouse gas reduction efforts are not proving successful in the context of economic growth.

Economic growth is extremely important to the U.S. as well. Specifically, in the Southeast, economic growth is projected to drive an increase in electricity demand of more than 30% over the next fifteen years. This trend is illustrated in Figure 1 below.

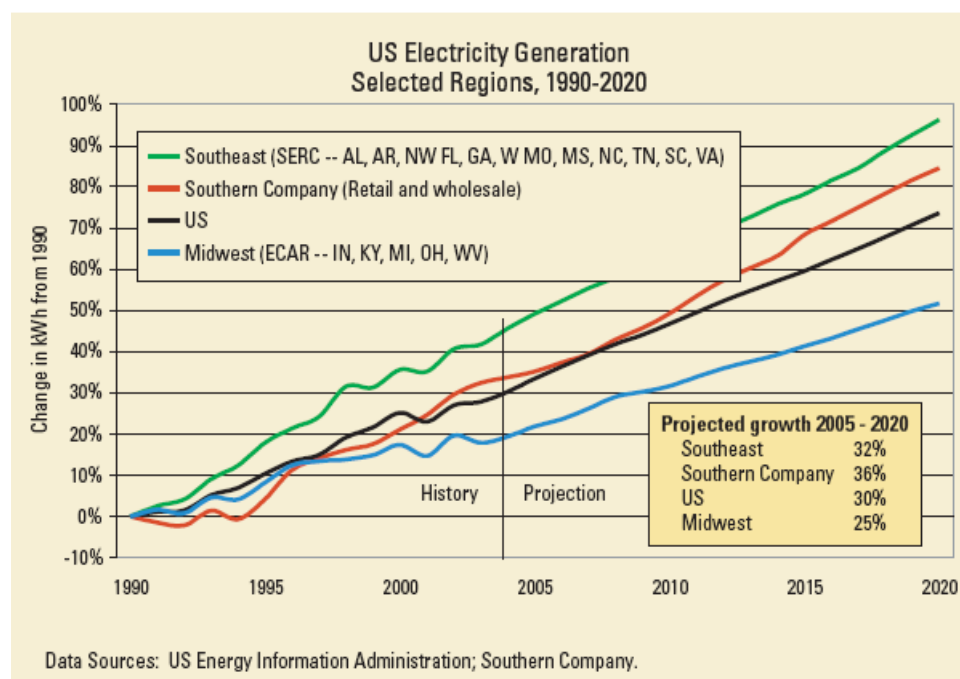


Figure 1

Internal modeling analysis done as part of a 2005 report to our shareholders¹ demonstrates how costly and difficult emissions reductions can be in the context of a growing economy. This report examined four different potential carbon price signals (see Figure 2) and found that, imposition of the “higher” price signal scenario (which starts at about \$7/ton of CO₂ in 2012 and increases to about \$13/ton by 2020) would reduce -- by a small amount -- the growth in CO₂ emissions from our generation, as shown in Figure 3.

¹ This report, entitled “Southern Company Environmental Assessment: Report to Shareholders” can be found on our website at: <http://www.southernco.com/planetpower/report.asp?mnuOpco=soco&mnuType=ppb&mnuItem=oc>

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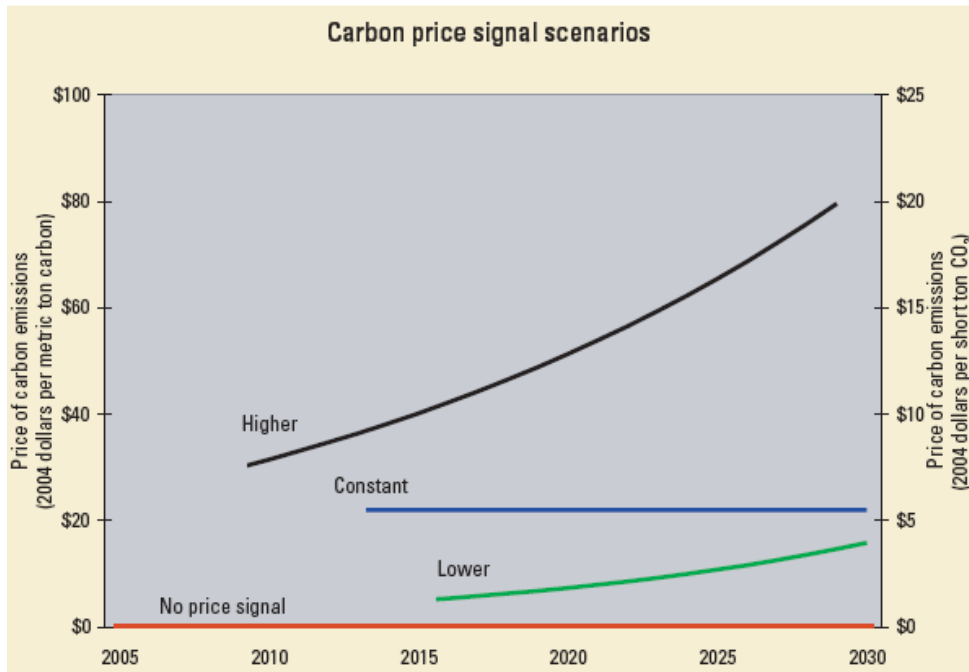


Figure 2

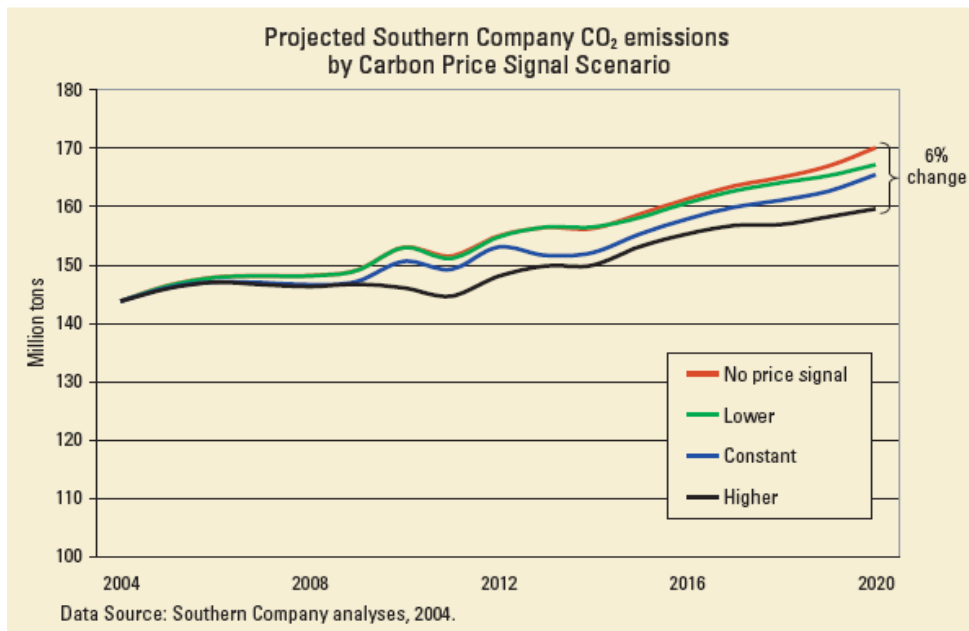


Figure 3

This carbon price signal is expensive: it would raise electricity bills for our customers by some 14% by 2020.

Modeling analysis also shows how the availability of new, cost-effective, non-emitting technology can reduce the burden. For example, when our report to shareholders examined the assumption that new, non-emitting technology is adopted, even without a carbon price – in the

Additional Topics

Submitter's Name/Affiliation: (Chris M. Hobson/Southern Company)

form of two new nuclear units in 2015 and 2016 -- Southern Company's CO₂ emissions fell by 7% below 2020 projections. See Figure 4.

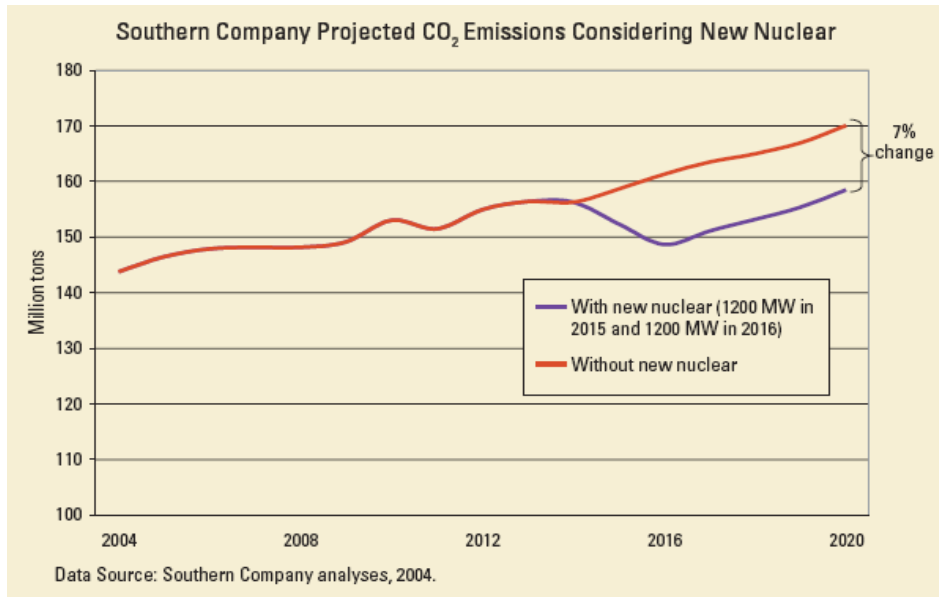


Figure 4

This demonstrates the crucial importance of the development and deployment of large-scale, cost-effective, low-emitting technologies.

Based on the results of this analysis, Southern Company's policy is to continue to support voluntary, technology-focused approaches to reduce greenhouse gas intensity. These make the most sense for us as company and for countries like the U.S. that are expecting sustained, robust economic growth well into the future. We oppose approaches that impose mandatory regulation of CO₂ and/or greenhouse gas (GHG) emissions – whether they are intensity-based, cap-and-trade-based, or tax-based.

While these comments from Southern Company do address certain aspects of a mandatory greenhouse gas regulatory program, these comments are made in response to the Committee's request only and should not be construed to constitute endorsement of any mandatory GHG reduction program. Nor should these comments be read to constitute endorsement of any of the proposals or concepts in the white paper.

It is important to note that the Committee's request for comments has left out critical elements of any GHG control program. These elements include:

1. The stringency of the reduction target -- and whether the target is tons-based or intensity-based. The U.S. and the Southeast both enjoy growing economies. We want to make sure that any program allows for that growth to continue.
2. The time allowed to achieve the target. Any policy to manage GHG emissions should consider the long-term nature of both the issue itself and the necessary technological development.

Additional Topics

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3. The availability of technologies needed to meet the target and timetable contemplated. Cost-effective, low- to non-CO₂-emitting technologies are not yet available on a large scale. Any program must allow time for the development and deployment of such technologies, both in the U.S. and around the world.
4. A mechanism to limit any serious impact to the economy, such as a "safety valve."
5. A mechanism for regulated entities to be able to use emission reductions/sequestration credits in the form of "offsets" (other than a discussion of an "offset pilot program"). Offsets provide critical flexibility mechanisms that have the potential to mitigate the costs of any mandatory program.

These omissions make it difficult for interested parties to comment on the aspects of a mandatory program on which comments were requested.

Wal-Mart

Submitter: Raymond Bracy, Vice President for Corporate Affairs, Wal-Mart Inc. 702 SW 8th St., Mitchell Building Bentonville, AR 72716-0130 E-mail: Raymond.brac@wal-mart.com
Ph: 479-277-0938

EXECUTIVE SUMMARY

Wal-Mart Stores, Inc. (“Wal-Mart”) appreciates the opportunity to provide input to the Senate Energy and Natural Resources Committee on the “Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System.” As the largest retail company in the world, the largest private consumer of electricity in the United States and the owner of the largest private heavy-duty truck fleet in the country, Wal-Mart takes keen interest in the work of the Committee on this critical issue. Wal-Mart understands that the scope and scale of its business have significant environmental impact and that its operations lead to significant greenhouse gas (“GHG”) emissions. However, the scope and scale of Wal-Mart’s business also enable the company to effectuate substantial improvements on a global scale. Wal-Mart recently has adopted a number of strong commitments to sustainability. Our environmental goals at Wal-Mart are simple and straightforward: 1) to be supplied 100 percent by renewable energy; 2) to create zero waste; and 3) to sell products that sustain our resources and environment. A crucial part of reaching the company’s environmental goals is reducing the company’s GHG emissions and its impact on the world’s climate. Wal-Mart already has taken steps to reduce its GHG emissions and is committed to making significant further progress. In the comments attached, the company provides input on each of the four questions posed by the White Paper.

Wal-Mart understands the critical need for action to address climate change and would accept the approach of a mandatory cap-and-trade system to control GHG emissions. Wal-Mart strongly believes that such a system must provide fairness to those companies and entities, like Wal-Mart, that have already taken substantial steps to reduce GHG emissions and that are committed to making further significant progress. Wal-Mart will not wait for a mandatory control system to reduce its GHG impact, but any mandatory system should recognize previous measures taken and should ensure future incentives for such investments and best practices. In addition, Wal-Mart’s top priority always has been the well-being of its customers. Any GHG control system must protect the interests of all consumers.

Wal-Mart believes that electric generators, large industrial entities and the transportation sector are the logical sectors to be covered by a mandatory cap-and-trade system. These three sectors account for approximately 70% of the GHG emissions in the United States and represent sectors where emissions trading could most easily be implemented. Regardless of which sectors are regulated or where within those sectors emission limitations are imposed, Congress should set aside a portion of the allowances under emission caps for non-regulated entities that undertake projects to reduce GHG emissions. Such a set-aside must be used to incentivize companies to take beneficial action and reward them for doing so. Wal-Mart also believes that a U.S. cap-and-trade program should leave open the opportunity for integrating with other cap-and-trade programs around the world. In addition, Congress should ensure that trade barriers do not restrict the transfer GHG reduction technology to U.S. trading partners.

Wal-Mart believes that the U.S. should provide strong leadership on climate change, with the help of companies like Wal-Mart, while serving the interests of U.S. consumers. Wal-Mart welcomes the opportunity to participate in this process.

RESPONSE OF WAL-MART TO QUESTION 1: Who is regulated and where?

Introduction

Wal-Mart is the world's largest retailer and the largest non-governmental consumer of electricity in the United States. In addition, Wal-Mart's company-owned trucking fleet is one of the largest in the world, consuming approximately 140 million gallons of diesel fuel annually. Given the energy intensive nature of its activities, Wal-Mart recognizes that its operations lead to significant emissions of greenhouse gases ("GHGs"). Wal-Mart is committed to being a good steward of the environment. In rising to this challenge, Wal-Mart has begun by focusing on energy effectiveness, waste reduction and the promotion of environmentally preferable products.

A crucial part of reaching the company's environmental goals is reducing the company's greenhouse gas emissions and its impact on the world's climate. On October 25, 2005, Wal-Mart's CEO Lee Scott set forth Wal-Mart's commitment on sustainability and explained the company's focus on using the scope and scale of its business to effect positive global change.¹ Mr. Scott announced Wal-Mart's commitment to reducing the company's greenhouse gas emissions stating: "We believe every company has a responsibility to reduce greenhouse gases as quickly as it can. Wal-Mart can help restore balance to climate systems, reduce greenhouse gases, save money for our customers, and reduce dependence on foreign oil."

As part of its sustainability initiative, Wal-Mart has set the following targets:

- Reduce greenhouse gases emitted as a result of the operations at its existing store, club and distribution centers around the world by 20 percent over the next 7 years.
- Design and open a prototype building that is 25-30 percent more efficient and will produce up to 30 percent fewer greenhouse gas emissions within the next 4 years. Wal-Mart already has developed demonstration stores with energy saving features, including advanced lighting, heating and air conditioning, as well as energy systems of the future, such as wind power, solar energy, sky lighting and biofuel boilers.
- Increase trucking fleet efficiency by 25 percent in the next 3 years, and double efficiency in the next 10 years.
- Share Wal-Mart's experience and technology with others around the world, including our competitors, because the more companies that adopt environmentally-sensitive technologies, the more the cost of

¹ A transcript of Mr. Scott's October 25, 2005 presentation can be found on Wal-Mart's website at <http://walmartstores.com/Files/21st%20Century%20Leadership.pdf>.

such technologies will decline, thus enabling needed change without adverse economic impact.

- Aggressively pursue regulatory and policy change that will create incentives to invest in energy efficiency and low or no greenhouse gas sources of electricity, and to reduce barriers to integrating these sources into the power grid.
- Implement a program in the U.S. over the next 18 months that assists our suppliers in identifying cost-effective ways to reduce their greenhouse gas emissions and establish a preference for doing business with those suppliers that aggressively reduce their own emissions.

Wal-Mart takes these goals seriously. The company's focus on the reduction of greenhouse gas emissions is part of a culture of sustainability that Wal-Mart seeks to incorporate in all aspects of its business. The company believes that the focus on sustainability will benefit the environment, its customers and ultimately its business. Wal-Mart therefore has begun moving forward quickly to reduce its impact on the global climate. It is in the context of this fundamental corporate commitment that Wal-Mart submits these comments on the design elements of a mandatory, market-based GHG regulatory system. Wal-Mart wants to work with the government at all levels to promote policies that will encourage and reward those businesses that are prepared to act to reduce the threat of global climate change.

1. Who is regulated and where?

Wal-Mart Comments

Wal-Mart believes that the most effective and efficient GHG regulatory program will have as its focal point a trading system that provides appropriate incentives for participants in all sectors of the economy and that reward companies and individuals for taking actions that result in reductions in GHG emissions. Thus, Wal-Mart believes that Congress must design an emissions trading program that would allow companies like Wal-Mart, whose investments already have reduced and will continued to reduce energy consumption and GHG emissions, to reap the benefit of those investments. The Clean Air Act's acid rain program clearly has demonstrated the economic efficiency of a national emissions trading program as applied to electricity generators. Congress should use such trading programs as models for developing a GHG emissions trading program. However, the electric generating industry represents just over one-third of the GHG emissions in the United States, so caps on emissions must be expanded to include other key sectors as well. The logical sectors for regulation are the electric, large industrial and transportation sectors. A program that caps emissions from all of these three sectors would capture in excess of 70 percent of the GHG emissions in the United States. Then, by means of a trading program that allows participation by a much broader range of players, the burden of those subject to a direct emission cap can be greatly reduced. Any party that can measure and verify GHG reductions should be allowed to participate.

Submitter: Raymond Bracy, Vice President for Corporate Affairs, Wal-Mart Inc. 702 SW 8th St., Mitchell Building Bentonville, AR 72716-0130 E-mail: Raymond.brac@wal-mart.com
Ph: 479-277-0938

For each of these sectors, there are multiple points at which GHG emissions could be regulated. For the electric generating industry, the most logical point is at the generator level. Electric generators have the greatest ability in the long-term to reduce GHG emissions from electricity. Thus, the economic incentives from the trading program will be focused on those who can most efficiently effect change. Similarly, for large industrial sources, regulation should be at the source. This would provide them with the incentive and opportunity to improve production efficiency and reduce GHG emissions. For the transportation sector, setting carbon caps upstream such as at a distribution level would capture most or all of the transportation fuels and would provide the most direct incentive for companies to expand the use of renewable fuels (ethanol blends, bio-diesel, *etc.*) and promote increased fuel efficiency.

Regardless of which sectors are directly regulated or where the limitations are imposed, Wal-Mart believes that the most important consideration is that the regulatory program provide rewards and incentives to all those who can reduce their GHG emissions by allowing such entities to earn emission reduction credits for projects undertaken to reduce their GHG emissions. These projects by entities not subject to direct caps on their GHG emissions can substantially reduce the cost and enhance the efficiency of a GHG reduction program. For Wal-Mart, such projects include opportunities to increase energy efficiency and conserve energy through technology and process changes to heating systems, cooling systems, compressors, lighting and refrigeration systems; to offset power from the grid through the addition of solar panels, wind turbines and other sources of renewable energy at its stores; and to increase efficiency of the company's transportation fleet and undertake other technological innovations to reduce the company's demand for transportation fuel. Other companies outside the sectors that can most efficiently be reached through direct emissions limits can undertake similar projects. Collectively, such efforts can make a significant contribution to the Nation's efforts to both enhance economic efficiency and reduce the threat of climate change.

Congress can ensure that entities undertaking projects that result in lower GHG emissions from affected upstream sources share in the benefit by setting aside allowances for such projects. For example, if the annual budget for the directly regulated sectors under a GHG cap-and-trade program were four billion tons, (approximately 60 percent of economy-wide GHG emissions), and Congress set aside 2 percent of the allowances for downstream efficiency projects, this would represent a pool of 80,000,000 allowances that could be provided to electric consumers to help make conservation projects more cost effective. In addition to incentivizing beneficial behavior, awarding allowances also would appropriately reward those companies that can make the most immediate impact on GHG emissions through conservation measures.

Thus, Wal-Mart believes that entities not directly covered by the cap-and-trade program that are willing to take measures to reduce their own GHG footprint should be rewarded and incentivized to do more, either by allowing such entities to opt-in to the program (*e.g.*, smaller industrial facilities) or by setting aside a portion of the greenhouse gas allowances for projects that lead to reductions in GHG emissions. In short, as the largest non-government electric consumer in the country, and as a company with the largest private heavy-duty transportation fleet in the country, Wal-Mart can – and already has begun to – effectuate meaningful reductions in GHG emissions through conservation, efficiency and renewable energy projects. The efforts of Wal-Mart and other companies undertaking such projects can make a

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real difference in ensuring that GHG reduction efforts can be carried out at the lowest cost to the economy. Wal-Mart looks forward to working with Congress to develop specific legislative language that would encourage non-covered entities to undertake projects to reduce GHG emissions by allowing such entities to obtain emissions credits for such projects.

RESPONSE OF WAL-MART TO QUESTION 2: Should the costs of regulation be mitigated for any sector of the economy through the allocation of allowances without cost? Or, should allowances be distributed by means of an auction? If allowances are allocated, what is the criteria for and methods of such allocation?

Regardless of whether allowances are allocated or auctioned, Wal-Mart believes that any cap-and-trade legislation developed by Congress must ensure that the impacts of the program on consumers are mitigated and that allowances are set-aside for non-covered companies undertaking projects to reduce greenhouse gas emissions.

Consumer protections are particularly important to Wal-Mart. The company serves over 100 million customers every week and believes that a portion of the GHG allowances (or a portion of the proceeds from allowance sales at auction) should be distributed in a manner to ensure that the costs of the GHG program are not borne by those consumers who can least afford increased costs. Indeed, Wal-Mart believes that the company could play an important role in assisting consumers in avoiding higher energy prices that might result from a mandatory market-based program through education and outreach programs that would inform our customers about energy efficient and environmentally friendly products and fuels. Wal-Mart looks forward to working with Congress to develop innovative programs that could assist consumers in mitigating cost impacts from a GHG cap-and-trade program.

Wal-Mart believes that it is important for any GHG regulatory program to include allowance set-asides because that will provide non-regulated entities with incentives to undertake projects that reduce greenhouse gas emissions, including projects that reduce emissions from covered upstream sources (*e.g.*, efficiency projects that reduce demand for electricity from power generators, thus reducing GHG emissions) and then reward them for doing so. For example, through a combination of efficiency upgrades and technological innovations, Wal-Mart is committed to reducing its GHG emissions by 20 percent over the next 7 years. As part of its efforts, Wal-Mart plans to increase the efficiency of its trucking fleet by 25 percent in the next 3 years, and to double efficiency in the next 10 years. Importantly, Wal-Mart expects to share its technological innovations with its suppliers and other entities throughout the world so that the impacts can be even greater. Congress should ensure that the program it develops recognizes efforts by Wal-Mart and other companies to reduce greenhouse gas emissions. Congress therefore should provide incentives to undertake such projects by setting aside a portion of the cap to be allocated to entities undertaking such projects.

Furthermore, Wal-Mart and many other companies already have begun to take aggressive action to reduce their emissions. As the Congress now begins to debate mandatory limits, it should avoid creating an incentive for companies to slow the efforts that they have underway out of a fear they will be disadvantaged under a mandatory program. Thus, legislative proposals should include strong provisions rewarding those who have taken early action to achieve verifiable reductions in their greenhouse gas emissions.

Submitter: Raymond Bracy, Vice President for Corporate Affairs, Wal-Mart Inc. 702 SW 8th St., Mitchell Building Bentonville, AR 72716-0130 E-mail: Raymond.brac@wal-mart.com
Ph: 479-277-0938

RESPONSE OF WAL-MART TO QUESTION 3: Should a U.S. system be designed to eventually allow for trading with other greenhouse gas cap-and-trade systems being put in place around the world, such as the Canadian Large Final Emitter system or the European Union emissions trading system?

Wal-Mart believes that a U.S. cap-and-trade program for GHGs should leave open the opportunity for integrating with other cap-and-trade programs around the world and should further leave open the potential for the creation of a U.S. carbon market that would become a leading exchange for the trade of GHG credits. Wal-Mart appreciates the myriad questions that would have to be answered to effectuate these linkages and to foster a vibrant GHG market in which the U.S. is an active participant. Wal-Mart will be happy to work with Congress to develop legislative language that will not foreclose opportunities for global participation.

Like many other large U.S.-based companies, Wal-Mart is a global company, with a presence in 16 countries including the United States. Wal-Mart acts globally on environmental issues by gathering ideas from divisions and units everywhere and undertaking efforts to reduce emissions world-wide. Importantly, Wal-Mart is actively developing programs to transfer technologies to its suppliers world-wide, including in China, so that a greater number of companies may increase efficiency and reduce emissions. From Wal-Mart's perspective as a global company, it makes sense to encourage activity throughout the world that will lead to reduced greenhouse gas emissions. Wal-Mart believes that linkages with international greenhouse gas programs can serve to increase incentives to reduce greenhouse gas emissions.